Patrick E. Lindemann

Ingham County Drain Commissioner

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Carla Florence Clos
Deputy Drain Commissioner

Paul C. Pratt
Deputy Drain Commissioner

David C. Love
Chief of Engineering and Inspection

Sheldon Lewis
Administrative Assistant

September 17, 2015

The Honorable Tina Houghton
City of Lansing
10th Floor, City Hall
124 West Michigan Ave.
Lansing, MI 48933
RE: Montgomery Drain Project Status Report

Dear Council President Houghton:

As you are aware, the Ingham County Drain Office was petitioned by the City of Lansing and County of Ingham in 2014 to design improvements to the Montgomery Drain that address the contaminated stormwater runoff that is dumped into the Red Cedar River. As a leader of one of the units of governments that owns property in this watershed I wanted to keep you informed as this process progresses.

Enclosed please find for your review a bound copy of the application for a Michigan Department of Environmental Quality permit for the above project. The material also includes the hydraulic report that was submitted, as well as a summary of the effects on wetlands, inland lakes and streams and the floodplain. The application outlines our proposed solutions to the impacts identified.

It is important to understand that this application addresses issues of water volume, quantity, cleaning and movement. It has been prepared to specifically address stormwater movement, alleviate some of the flooding and improve the water quality of the Montgomery Drain and the Red Cedar River. This material provides parameters for an overall redesign of the Montgomery Drain. However, I must reiterate that these are not the final design plans that will be officially proposed to the public to correct the issues found on the Montgomery Drain.

As the final design develops I will keep you informed of our progress. Please don't hesitate to contact me should you have any questions. I am available to meet personally and discuss these issues in more detail. I am honored to have the responsibility entrusted in me to ensure proper stewardship of our County's water resources.

Sincerely,

Patrick E. Lindemann
Ingham County Drain Commissioner

C.O.W.
10/12

PERMIT APPLICATION

for

MONTGOMERY DRAIN MAINTENANCE AND IMPROVEMENT PROJECT

Ingham County, Michigan

Prepared By:

Spicer group

streamside ecological services

August 31, 2015

As Authorized Agents for:

INGHAM COUNTY
CLEAN WATER
DRAIN COMMISSIONER
PATRICK E. LINDEMANN

Montgomery Drain Maintenance and Improvement Project Permit Application

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streamside
ecological services

August 31, 2015

Michigan Department of Environmental Quality
Ms. Carol Valor
P.O. Box 30204
Lansing, MI 48909

RE: Permit Application, Ingham County Drain Commissioner, Montgomery Drain

Dear Ms. Valor

Enclosed please find a complete permit application requesting approvals for minor wetland impacts, construction of wetland mitigation, construction of treatment wetlands, construction of a treatment pond, discharges to the Red Cedar River, and work within the floodplain of the Red Cedar River. Also enclosed is a $500.00 permit application fee.

The primary focus of Montgomery Drain Improvement Project is to employ Low Impact Design (LID) to clean storm water runoff before it reaches the Red Cedar River. This includes the use of bio retention gardens and ponds, bioswales, green roofs, green walls, permeable pavement, soil amendments, tree box filters, rain barrels and cisterns. Much of these designs are proposed outside state regulated features (with the exception of the 100-year floodplain) and are associated with retrofitting existing storm systems within a highly urbanized area located north of the primary project site.

Coordination with a proposed development on the primary project site (area south of Michigan Avenue) is required to accomplish the project, move water from the north to the Red Cedar River, and to provide the necessary water quality treatment. As such, this permit is being submitted concurrently with the developers permit (under separate permit application) and we request concurrent review with respect to proposed impacts overall mitigation, and floodplain compensation. This review, and wetland and floodplain compensations have been discussed with MDEQ staff on numerous occasions under MDEQ pre-application number 15-33-0040P.

We appreciate your attention to our application. If you have any questions please contact me at 586-764-9366.

Sincerely,

STREAMSIDE ECOLOGICAL SERVICES, INC.

Michael B. Nurse, PWS, Wetlands/Aquatic Biologist

Atts:

Cc. Mr. Thomas Kolhoff, MDEQ
Ms. Donna Cervelli, MDEQ
Mr. Jerry Fulcher, MDEQ

AGENCY USE	Previous USACE File Number	Date Received	DEQ File Number
	USACE File Number		Fee received $

Validate that all parts of this checklist are submitted with the application package. Fill out application and additional pages as needed.

- ☒ All items in Sections 1 through 9 are completed.
- ☒ Project-specific Sections 10 through 20 are completed.
- ☒ Dimensions, volumes, and calculations are provided for all impact areas.
- ☒ All information contained in the headings for the appropriate Sections (1-20) are addressed, and identified attachments (➡) are included.
- ☒ Map, site plan(s), cross sections; one set must be black and white on 8 ½ by 11 inch paper; photographs.
- ☒ Application fee is attached.

1 Project Location Information *For Latitude, Longitude, and TRS info anywhere in Michigan see www.mcgi.state.mi.us/wetlands/*

Project Address (road, if no street address)	Zip Code	Municipality (Township/Village/City)	County
Southeast corner of Michigan Avenue and Clippert Street.	*48912*	*City of Lansing, City of East Lansing, Lansing Charter Twp.*	*Ingham*

Property Tax Identification Number(s)	Latitude	Township/Range/Section (TRS)
Numerous	*42.7302* N	T *4N* N or S; R *2W* E or W;
Subdivision/Plat and Lot Number *N/A*	Longitude - *84 5023* W	Sec *13,14* OR Private Claim # ____

2 Applicant and Agent Information

Owner/Applicant (individual or corporate name)	Agent/Contractor (firm name and contact person)
Patrick E. Lindemann, Ingham County Drain Commissioner	*Streamside Ecological Services, Mike Nurse*
Mailing Address *707 Buhl, PO Box 220*	Mailing Address *37890 DePrez Ct.*
City *Mason* State *MI* Zip Code *48854*	City *HarrisonTownship* State *MI* Zip Code *48045*
Contact Phone Number *517-876-8395* Fax *517-676-8364*	Contact Phone Number *586-764-9366* Fax
Email *patricklindemann@me.com*	E-mail *mnurse@streamsideeco.com*

☒ No ☐ Yes Is the applicant the sole owner of all property on which this project is to be constructed and all property involved or impacted by this project? ➡ If no, attach letter(s) of authorization from all property owners including the owner of the disposal site. ***See Tab 3 for Lansing City Council Resolution and Petition from the City of Lansing***

Property Owner's Name (If different from applicant)	Mailing Address
Easements held by Montgomery Drain Drainage District	*707 Buhl Street, PO Box 220*
Contact Phone Number *517-876-8395*	City *Mason* State *MI* Zip Code *48854*

3 Project Description

Project Name	Preapplication File Number
Montgomery Drain Maintenance and Improvement Project	*15 – 33 – 0040*–P
Name of Water body *Red Cedar River/Montgomery Drain*	Date project staked/flagged *Numerous days*

The proposed project is on, within, or involves (check all that apply)

- ☒ an inland lake (5 acres or more)
- ☐ a pond (less than 5 acres)
- ☒ a stream, river, ditch or drain
- ☒ a legally established County Drain
  - Date Drain was established
- ☐ a channel/canal
- ☒ 500 feet of an existing water body
- ☐ a Great Lake or Section 10 Waters
- ☒ a wetland
- ☒ a 100-year floodplain
- ☐ a dam
- ☐ a designated high risk erosion area
- ☐ a designated critical dune area
- ☐ a designated environmental area

Project Use

- ☐ private
- ☐ commercial
- ☒ public/government
- ☐ project is receiving federal/state transportation funds
- ☒ Wetland Restoration
- ☐ other

Indicate the type of permit being applied for: ☐ General Permit ☐ Minor Project ☒ Individual (All other projects.) ➡ See Appendix C.

Written Summary of All Proposed Activities

The Montgomery Drain Improvement Project will employ Low Impact Design (LID) to clean storm water runoff before it reaches the Red Cedar River. The LID and design considerations for primary treatment north of Michigan Ave. consist of: source control, treatment for first flush rain events (treats first inch of runoff) and other water quality improvements. The LID techniques for this project will include the use of bio retention gardens and ponds, bioswales, green roofs, green walls, permeable pavement, soil amendments, tree box filters, rain barrels and cisterns. Most of the LID design features are proposed north of Michigan Avenue within the drainage district. Secondary treatment will be provided by recirculating storm water through a series of created wetlands and ponds located within the drainage district.

The project's goals are to facilitate the detention, retention, infiltration, nutrient uptake, evapotranspiration and filtering of storm water to improve water quality while also creating green spaces in urban landscape. Activities will include design changes to the existing system that slow down the storm water velocity and volume in order to allow for mitigation of impacts from pollutants via detention and retention methods to accommodate for filtration, evapotranspiration and cleansing. The post-project landscape will be designed in an ecological fashion with waterfalls, fish habitat and other aesthetic elements.

Bioengineered rain gardens, with amended soil profiles of aggregate, sand, non-woven geotextile fabric and a topsoil-compost mix will be constructed within the median areas along Michigan Avenue. These are currently planned to be from Highland Avenue west to Homer Street and involve a mix of jurisdictions between City of Lansing, City of East Lansing & MDOT. The configuration of the medians is based upon the current design and lane configuration for the proposed federal transportation project, CATA's Bus Rapid Transit (BRT). These bioengineered rain gardens will be underdrained and also have an overflow structure in them. The difference between the overflow structure height and the bottom of the rain garden is the water quality treatment volume for these areas and this system. All of these rain gardens in the median exceed first flush requirements (1" of rainfall) for the corresponding contributing sub-watershed for this area. The overflow structure and volume of the system is designed to treat runoff from primarily Michigan Avenue and right-of-way areas that discharge to existing catch basins or will be drained through spillways.

Bioengineered rain gardens will also be constructed within the Frandor area parking lots; portions to the north within the main shopping center and south in the Sears parking lot. These bioengineered rain gardens have the same cross section of amended soil and materials as the Michigan Ave. rain gardens to achieve storage and treatment through plant uptake and through the soil profile. The main portion of the Frandor parking lot will be rebuilt and storm water will be managed by installing these rain gardens within the parking lot in order to handle first flush volumes for storm water treatment before being discharged to secondary storm water treatment systems including the storm water quality treatment pond south of Michigan Avenue and/or the Ranney Park Storm Water Treatment Ponds.

The Ranney Park Storm Water Treatment Ponds are a series of constructed wetlands, bioretention areas, cascading rock swales and waterfalls and deeper storm water treatment ponds. This system is designed as regional detention for developed areas upstream that currently do not have onsite detention and will be used for overflow storage during larger rain events for excess storm water discharged from other regional detention or LID systems. The storm water system on Ranney Park will be a mix of gravity fed inputs and a recirculation system so that storm water may be continuously treated through these areas at all times (not only after rain events) before discharging to the storm water quality treatment pond south of Michigan Avenue.

The Storm Water Quality Treatment Pond located south Michigan Ave. and the proposed Red Cedar Renaissance Development will consist of a large pond with fringe wetlands and open water including some deeper holes. This pond is designed as regional detention for developed areas upstream that currently do not have onsite detention and will be used for storing excess runoff during larger rain events. Additionally this pond will provide water quality benefits by wetland filtration, nutrient uptake, extended detention, sedimentation and serve as a reservoir for recirculating storm water through LID treatment systems.

The current plans for these areas are shown in the exhibits and associated detail sheets located in Tab 4. The designs for several of these areas are based upon landowner negotiations or municipal coordination within existing or proposed Montgomery Drain rights-of-way and retrofitting of those systems. Although the current design is shown, some alterations may be needed, but the overall intent of the design of the storm water system will be intact.

Specifically, the regulated activities this permit application is requesting approval for are located south of Michigan Avenue and include the following:

Part 301 Inland Lakes and Streams

- Storm Water Quality Treatment Pond - Construct a 6.7 acre pond and wetlands, by excavating a total of 127,467 cubic yards.
- East Outfall Structure - Excavate 29 cubic yards (25 cubic yards below the OHWM) of material to construct a storm water outlet pipe and outfall structure. Place approximately 20 cubic yards of fill (15 cubic yards below the OHWM) consisting of pipe bedding, backfill, concrete pipe, and concrete outlet structure. Place 10 cubic yards of riprap (6 cubic yards below the OHWM). All fill and riprap will be placed at or below existing grades. All excess soils are to be placed at a suitable offsite upland location.
- West Outlet Structure - Excavate 29 cubic yards (25 cubic yards below the OHWM) of material to construct a storm water outlet pipe and outfall structure. Place approximately 20 cubic yards of fill (15 cubic yards below the OHWM) consisting of pipe bedding, backfill, concrete pipe, and concrete outlet structure. Place 10 cubic yards of riprap (6 cubic yards below the OHWM). All fill and riprap will be placed at or below existing grades. All excess soils are to be placed at a suitable offsite upland location.
- Overflow Spillway - Excavate 160 cubic yards (18 cubic yards below the OHWM) of material to construct an overflow spillway. Place approximately 80 cubic yards of fill (18 cubic yards below the OHWM) consisting of bedding and articulate concrete mat. Place 80 cubic yards of riprap/articulated concrete mat (9 cubic yards below the OHWM). All fill and riprap will be placed at or below existing grades. All excess soils are to be placed at a suitable offsite upland location.
- Remove Existing Storm Water Outfall - Excavate 20 cubic yards (10 cubic yards below the OHWM) of material to remove the existing Montgomery Drain outfall. Place approximately 20 cubic yards of fill (10 cubic yards below the OHWM) consisting of backfill and topsoil. Place 40 cubic yards of riprap (20 cubic yards below the OHWM). All fill and riprap will be placed at or below existing grades. All excess soils are to be placed at a suitable offsite upland location.

Part 303 Wetlands

- Wetland C - Excavate 1,289 cubic yards of material to construct a treatment wetland/pond, a storm water outlet pipe, an inlet structure and an overflow spillway. Place approximately 365 cubic yards of fill within Wetland C consisting of pipe bedding, backfill, concrete pipe, concrete inlet structure, articulated concrete mat and riprap. All fill will be placed at or below existing grades. Existing wetland topsoil material will be stockpiled and reused in wetland mitigation sites. For the purposes of calculating wetland impacts, all of Wetland C (0.43 acres) will be mitigated. All excess soils are to be placed at a suitable offsite upland location.
- Wetland B will not be impacted by construction. However, storm water from the proposed storm water quality treatment pond will occasionally discharge to this wetland during larger in frequent storm events. This storm water will have gone through primary and secondary treatment processes.
- Wetland A and F will not be impacted by construction and a buffer will be maintained around these wetlands.

- Construct a total of 2.6 acres of wetland as mitigation for impacts associated with the project south of Michigan Avenue. In addition, the treatment pond will create a total of 3.76 acres of wetland surrounding deeper open water. This wetland and open water is designed for water quality treatment and not included as part of the wetland mitigation. These non-mitigation wetlands will require ongoing maintenance and access by the Drain Commissioner to remain an essential part of water quality treatment.
- Part 31 Floodplain
- Storm Water Quality Treatment Pond - Construct a 6.7 acre pond and wetlands, by excavating a total of 127,467 cubic yards from the Red Cedar floodway/floodplain. All finished grades will be at or below existing grades. All excess soils are to be placed at a suitable offsite upland location.
- Non-Motorized Path - Excavate 1,748 cubic yards of material to construct a non-motorized pathway. Place approximately 1,748 cubic yards of fill consisting of base, sub-base, HMA surface and topsoil. All fill will be placed at or below existing grades. All excess soils are to be placed at a suitable offsite upland location.
- East Outfall Structure - Excavate 370 cubic yards of material to construct a storm water outlet pipe and outfall structure. Place approximately 350 cubic yards of fill consisting of pipe bedding, backfill, concrete pipe, and concrete outlet structure. All fill will be placed at or below existing grades. All excess soils are to be placed at a suitable offsite upland location.
- West Outlet Structure - Excavate 593 cubic yards of material to construct a storm water outlet pipe and outfall structure. Place approximately 573 cubic yards of fill consisting of pipe bedding, backfill, concrete pipe, and concrete outlet structure. All fill will be placed at or below existing grades. All excess soils are to be placed at a suitable offsite upland location.
- Overflow Spillway - Excavate 160 cubic yards of material to construct an overflow spillway. Place approximately 80 cubic yards of fill consisting of bedding and articulate concrete mat. All fill will be placed at or below existing grades. All excess soils are to be placed at a suitable offsite upland location.
- Remove Existing Storm Water Outfall - Excavate 410 cubic yards of material to remove the existing Montgomery Drain outfall. Place approximately 400 cubic yards of fill consisting of backfill and topsoil. All fill will be placed at or below existing grades. All excess soils are to be placed at a suitable offsite upland location.
- Ranney Park Storm Water Treatment Ponds - Construct a series of storm water quality treatment ponds resulting in a net cut of 24,878 cubic yards from the Red Cedar floodplain. All excess soils are to be placed at a suitable offsite upland location.
- Frandor Area Storm Water Plan (North) - Construct a series of bioengineered rain gardens resulting in a net cut of 2,823 cubic yards from the Red Cedar floodplain. All excess soils are to be placed at a suitable offsite upland location.
- Frandor Area Storm Water Plan (South) - Construct a series of bioengineered rain gardens resulting in a net cut of 516 cubic yards from the Red Cedar floodplain. All excess soils are to be placed at a suitable offsite upland location.
- Michigan Avenue Storm Water Plan - Construct a series of bioengineered rain gardens resulting in a net cut of 8,842 cubic yards from the Red Cedar floodplain. All excess soils are to be placed at a suitable offsite upland location.
- During pre-application meetings, MDEQ staff indicated that the additional flood volume created between the existing ground elevation and the top of the storm water storage/overflow elevation within the constructed pond area can be used as compensating cut, BUT ONLY for the 10-year and more frequent events. An additional benefit of constructing the water quality treatment pond to the proposed grades was an opportunity was created to provide floodplain storage/compensating cut during higher frequency storm events (10-yr or less). Approximately 21.8 acre feet (35,200 cubic yards) of floodplain storage is being provided between existing grade and the proposed overflow spillway. See table in Tab 5. A detailed discussion of this volume is included in the Red Cedar Renaissance Joint Permit Application.

Construction Sequence and Methods This permit is being submitted in conjunction with a permit for development work adjacent to the improvements on the Montgomery Drain. The proposed improvements to the Montgomery Drain on the Red Cedar parcel will provide wetland mitigation and a storm water quality treatment pond. The work between these two projects will need to be coordinated in order to comply with permit requirements, to avoid scheduling conflicts, to avoid clearing between April 1st and September 30th, and to minimize disturbance to resources and soil erosion and sedimentation.

Conventional earth excavation and utility construction equipment will be utilized to construct this project as described above.

The Montgomery Drain construction will be done in accordance with the requirements of the Michigan Drain Code and the standards of the office of the Ingham County Drain Commissioner, and will be sequenced in accordance with an approved SESC plan.

4 Project Purpose, Use and Alternatives *Attach additional sheets as necessary.*

Describe the purpose of the project and its intended use; include any new development or expansion of an existing land use.

The primary purpose of the project is to improve the Montgomery Drain and its water quality prior to discharge to the Red Cedar River. See Section 3 above.

Describe the alternatives considered to avoid or minimize resource impacts. Include factors such as, but to limited to, alternative locations, project layout and design, and construction technologies. For utility crossings include alternative routes and construction methods.

The selected design is the only alternative considered that meets the project's level of service goals. The proposed location of the work was continually adjusted to reduce the total amount of impact on natural resources, including wetlands, floodplains, woodlands, inland lakes and streams.

This project (and the development project) has undergone numerous revisions to minimize impacts to wetlands and most significantly floodplains. Other alternatives included: Do nothing; Do not improve water quality; Lower level of service; Treatment if fewer pollutants/lower removal; Do not repair pipe system; Impact larger areas of wetland; Boardwalk through wetland (path was relocated); Leave areas where storm water remains untreated; Capture storm water for storage and detention in underground tunnel located along Michigan Avenue with a timed release; Capture in underground tunnel with recycling to upper ponds and timed release; Capture low end, recycle to upper ponds and then allow to flow through lower ponds and into the river.

Alternatives also had to be evaluated due to the presence of threatened and endangered species. As part of the communication between the MDEQ, the Drain Commissioner and Ferguson\Continental, the MDEQ provided a list of threatened and endangered species that have been known to occur in the area, indicated which species would have to be reviewed for, and provided direction on conducting reviews. The species listed by MDEQ include the following:

Common Name	Scientific Name	Status (State/Federal)
Round pigtoe mussel	*Pleurobema sintoxia*	Special Concern/Not Listed
Rainbow mussel	*Villosa iris*	Special Concern/Not Listed
Slippershell mussel	*Alasmidonta viridis*	Threatened/Not Listed
Cup plant	*Silphium perfoliatum*	Threatened/Not Listed
Beak grass	*Diarrhena obovata*	Threatened/Not Listed
Indiana bat	*Myotis sodalis*	Endangered/Endangered
Northern long-eared bat	*Myotis septentrionalis*	Not Listed/Threatened

Based on our discussions with the MDEQ, and their understanding of the projects, a review for the three mussel species listed is not required since the project does not require work within the river bed, and two of the three species are listed as special concern and not afforded protection under state of federal statute. The MDEQ requested review for the remainder of the species and provided direction on review for bat habitat, particularly since the northern long-eared bat was recently listed by the federal government and specific protocols for review have been established by the US Fish and Wildlife Service (USFWS). A copy of the threatened and endangered species review report is provided in Tab 5.

A variety of alternatives were evaluated to ensure the proposed project would not have any impact on the Red Cedar River during both small (frequent) and large (infrequent) flood events or cause harmful interference to adjacent property owners. Alternatives considered included: modifying the channel in the Red Cedar River to improve conveyance, removing and replacing bridge structures, and modifying adjacent floodplains on both the north and south sides of the river. The selected design of creating a storm water quality basin provided the mutual benefit of increasing flood water conveyance and storage for the Red Cedar River. The selected project design results in the water surface profiles on the Red Cedar River for flood events ranging between the 1-year and 100-year recurrence being maintained or lowered once the proposed drain project is completed. Please refer to the attached Hydrology and Hydraulic Analysis Report.

5 Locating Your Project Site *Attach a legible black and white map with a North arrow.*

Names of roads of closest intersection ***Michigan Avenue and South Clippert***

Directions from main intersection to the project site, with distances from the best and nearest visible landmark and water body ***See attached Maps in Tab 4***

Description of buildings on the site *(color; 1 or 2 story, other)*	Description of adjacent landmarks or buildings *(address; color; etc)*
None currently.	***Near Sears and Frandor Shopping area.***

How can your site be identified if there is no visible address? ***Commonly known as Red Cedar Park and Frandor Shopping area.***

6 Easements and Other Permits

☒ No ☐ Yes Is there a conservation easement or other easement, deed restriction, lease, or other encumbrance upon the property?

➡ If yes, attach a copy. Provide copies of court orders and legal lake levels if applicable.

List all other federal, interstate, state, or local agency authorizations including required assurances for Critical Dune Area projects.

Agency	Type of Approval	Number	Date Applied	Date approved /denied	Reason for denial

7 Compliance

If a permit is issued, when will the activity begin? (M/D/Y) *11/15/2015*	Proposed completion date (M/D/Y) *10/15/2018*

☒ No ☐ Yes Has any construction activity commenced or been completed in a regulated area?
➡ If Yes, identify the portion(s) underway or completed on drawings or attach project specifications and give completion date(s).
☐ No ☐ Yes Were the regulated activities conducted under a DEQ and/or USACE permit?
➡ If Yes, list the permit numbers
☒ No ☐ Yes Are you aware of any unresolved violations of environmental law or litigation involving the property?
➡ If Yes, attach explanation.

8 Adjoining Property Owners *Provide current mailing addresses. Attach additional sheets/labels for long lists.*

☐ Established Lake Board ☐ Lake Association	Contact Person	Mailing Address	City	State and Zip Code

List all adjoining property owners.
If you own the adjoining lot, provide the requested information for the first adjoining parcel that is not owned by you.

Property Owner's Name	Mailing Address	City	State and Zip Code
See attached list, map and mailing labels			

9 Applicant's Certification	*Read carefully before signing.*		
I am applying for a permit(s) to authorize the activities described herein. I certify that I am familiar with the information contained in this application; that it is true and accurate; and, to the best of my knowledge, that it is in compliance with the State Coastal Zone Management Program. I understand that there are penalties for submitting false information and that any permit issued pursuant to this application may be revoked if information on this application is untrue. I certify that I have the authority to undertake the activities proposed in this application. By signing this application, I agree to allow representatives of the DEQ, USACE, and/or their agents or contractors to enter upon said property in order to inspect the proposed activity site before and during construction and after the completion of the project. I understand that I must obtain all other necessary local, county, state, or federal permits and that the granting of other permits by local, county, state, or federal agencies does not release me from the requirements of obtaining the permit requested herein before commencing the activity. I understand that the payment of the application fee does not guarantee the issuance of a permit.			
☐ Property Owner ☐ Agent/Contractor ☒ Corp. or Public Agency / Title	Printed Name *Patrick E. Lindemann, Ingham County Drain Commissioner*	Signature	Date 8-28-15

10 Projects Impacting Inland Lakes, Streams, Great Lakes, Wetlands or Floodplains

- Complete only those sections A through M applicable to your project.
- If your project impacts wetlands also complete Section 12. If your project impacts regulated floodplains also complete Section 13.
- To calculate volume in cubic yards (cu yd), multiply the average length in feet (ft) times the average width (ft) times the average depth (ft) and divide by 27. Example: (25 ft long x 10 ft wide x 2 feet deep) / 27 = 18.5 cubic yards
- Some projects on the Great Lakes require an application for conveyance prior to Joint Permit Application completeness.

➡ Provide a black and white overall site plan, with cross-section and profile drawings. Show existing lakes, streams, wetlands, and other water features; existing structures; and the location of all proposed structures, land change activities and soil erosion and sedimentation control measures. Review Appendix B and EZ Guides for aid in providing complete site-specific drawings.

➡ Provide tables for multiple impact areas or multiple activities such as multiple fill areas or multiple culverts. Include your calculations.

Water Level Elevation

On inland waters ☐ NGVD 29 ☒ NAVD 88 ☐ other Observed water elevation (ft) ***819.0/819.5*** date of observation (M/D/Y) ***May 2015/February 2015***

On a Great Lake ☐ IGLD 85 ☐ surveyed ☐ converted from observed still water elevation.

☒ A. PROJECTS REQUIRING FILL (See All Sample Drawings)

➡ Attach a site plan and cross-section views to scale showing maximum and average fill dimensions with calculations.
➡ For multiple impact areas on a site provide a table with location, dimensions and volumes for each fill area.

Purpose ☐ bioengineered shore protection ☐ boat ramp ☐ boat well ☐ bridge or culvert ☐ crib dock
☒ riprap ☐ seawall ☐ swim area ☒ other ***Storm Water outfall***

Dimensions of fill (ft)	Total volume (cubic yards)	Volume below OHWM (cubic yards)
Length ***See Exhibits*** Width ***See Exhibits*** Maximum Depth ***See Exhibits***	***140 cy, See section 3***	***58 cy, See section 3***
Maximum water depth in fill area (ft) ***See Exhibits***	Area filled (sq ft) ***None, net cut, see section 3***	Will filter fabric be used under proposed fill? ☒ No ☐ Yes (If Yes, type)

Fill will extend _ feet into the water from the shoreline and upland _ feet out of the water. See Exhibits

Type of clean fill ☐ peastone % ☐ sand % ☐ gravel % ☒ other ***Engineered backfill, riprap, concrete***

Source of clean fill ☐ commercial ☐ on-site ➡ If on-site, show location on site plan. ☐ other ➡ If other, attach description of location.

☒ B. PROJECTS REQUIRING DREDGING OR EXCAVATION (See Sample Drawings)

- Refer to www.mi.gov/jointpermit for spoils disposal and authorization requirements.

➡ Attach a site plan and cross-section views to scale showing maximum and average dredge or excavation dimensions with calculations.
➡ For multiple impact areas on a site provide a table with location, dimensions and volumes for each dredge/excavation area.

Purpose ☐ boat ramp ☐ boat well ☐ bridge or culvert ☐ maintenance dredge
☐ navigation ☒ pond/basin ☒ other ***Storm Water Outfall***

Dimensions (ft) See Exhibits Length See Exhibits Width See Exhibits Maximum Depth See Exhibits	Total volume (cu yds) ***127,705 cy See Exhibits***	Volume below OHWM (cu yds) ***78 cy See Exhibits***

Has this same area been previously dredged?	☒ No ☐ Yes	If Yes, provide date and permit number:
Will the previously dredged area be enlarged?	☒ No ☐ Yes	If Yes, when and how much?
Is long-term maintenance dredging planned?	☐ No ☒ Yes	If Yes, how often? ***Sediment removal to provide adequate outlet***

Dredge or Excavation Method ☐ Hydraulic ☒ Mechanical ☐ other

Spoils Disposal

Dredged or excavated spoils will be placed ☐ on-site ☐ landfill ☐ USACE confined disposal facility ☒ other upland off-site
For disposal, provide a ➡ Detailed spoils disposal area location map and site plan with property lines.
➡ Letter of authorization from property owner of spoils disposal site, if disposed off-site.

For volumes less than 5,000 cu yards, has proposed dredge material been tested for contaminants within the past 10 years?
☐ No ☐ Yes ➡ If Yes, provide test results with a map of sampling locations.

☐ C. PROJECTS REQUIRING RIPRAP (See Sample Drawings 2, 3, 8, 12, 14, 22, and 23)

Riprap water ward of the ordinary high water mark: dimensions (ft) length ***See Exhibits*** width ***See Exhibits*** depth ***See Exhibits***	Volume(cu yd) ***44 cy See Exhibits***
Riprap landward of the ordinary high water mark: dimensions (ft) length ***See Exhibits*** width ***See Exhibits*** depth ***See Exhibits***	Volume(cu yd) ***99 cy***

Type and size of riprap (inches) Heavy MDOT Riprap – 16"+	Will filter fabric or pea stone be used under proposed riprap?
☒ field stone ☒ angular rock ☐ other	☐ No ☒ Yes, Type *Non-Woven*

☐ **D. SHORE PROTECTION PROJECTS** (See EZ Guides and Sample Drawings 2, 3, and 17. Complete Sections 10A, B, and/or C.)
➡ For bioengineering projects include the list of native plants/seeds, if available.

Type and length (ft)	☐ bioengineering (ft)	☐ revetment (ft)	☐ riprap (ft)	☐ seawall/bulkhead (ft)

Structure is ☐ new ☐ repair ☐ replacement of an existing structure	Will the existing structure be removed? ☐ No ☐ Yes
Proposed Toe Stone (linear feet)	Distance of project from adjacent property lines (ft)
Distance of project from an obvious fixed structure (example - 50 ft from SW corner of house)	
For bioengineering projects indicate the structure type ☐ brush bundles ☐ coir log ☐ live stakes ☐ tree revetment ☐ other	

☐ **E. DOCK - PIER – MOORING PILINGS** (See Sample Drawing 10)
➡ Attach a copy of the property legal description, mortgage survey, or a property boundary survey report.

Dock Type ☐ open pile ☐ filled ☐ crib ☐ floating ☐ cantilevered ☐ spring piles ☐ piling clusters ☐ other	
Is the structure within the applicant's riparian area interest area? ☐ No ☐ Yes ➡ Show parcel property lines on the site plan.	
Proposed structure dimensions (ft) length width	Use ☐ private ☐ public ☐ commercial
Dimensions of nearest adjacent structures (ft) length width	Distance of dock from adjacent property lines (ft)

☐ **F. BOAT WELL** (See EZ Guide. Complete Sections 10A and 10B)

Dimensions (ft) length width depth	Number of boats
Type of sidewall stabilization ☐ concrete ☐ riprap ☐ steel ☐ vinyl ☐ wood ☐ other	
Volume of backfill behind sidewall stabilization (cu yd)	Distance of boat well from adjacent property lines (ft)

☐ **G. BOAT RAMP** (See EZ Guide. Complete sections 10A, 10B, and 10C for mattress and pavement fill, dredge, and riprap)

Type ☐ new ☐ existing ☐ maintenance/improvement		Use ☐ private ☐ public ☐ commercial
Existing overall boat ramp dimensions (ft) length width depth		Type of construction material ☐ concrete ☐ wood ☐ stone ☐ other
Proposed overall ramp dimensions (ft) length width depth		Proposed ramp dimensions (ft) below ordinary high water mark length width depth
Number of proposed skid piers	Proposed skid pier dimensions (ft) length width	Distance of ramp from adjacent property lines (ft)

☐ **H. BOAT HOIST – ROOFS** (See EZ Guide)

Type ☐ cradle ☐ side lifter ☐ other	Located on ☐ seawall ☐ dock ☐ bottomlands
Hoist dimensions, including catwalks (ft) length width	
Area occupied, including cat walks (sq ft)	Distance of hoist from adjacent property lines (ft)
Permanent Roof ☐ No ☐ Yes ➡ If Yes, how is the roof supported?	Maximum Roof Dimensions (ft): length width height

☐ **I. BOARDWALKS and DECKS in WETLANDS or FLOODPLAINS** (See Sample Drawings 5 and 6. Complete Sections 12 and/or 13)
➡ Provide a table for multiple boardwalks and decks proposed in one project; include locations and dimensions.

Wetlands		Floodplains	
Boardwalk ☐ on pilings ☐ on fill Dimensions (ft) length width	Deck ☐ on pilings ☐ on fill Dimensions (ft) length width	Boardwalk ☐ on pilings ☐ on fill Dimensions (ft) length width	Deck ☐ on pilings ☐ on fill Dimensions (ft) length width

☐ **J. INTAKE PIPES** (See Sample Drawing 16) or **OUTLET PIPES** (See Sample Drawing 22)

If outlet pipe, discharge is to ☐ inland lake ☒ stream, drain or river ☐ overland flow ☐ Great Lake ☐ wetland ☐ other

Number of pipes *2*	Pipe diameters and invert elevations ***East: 36" dia., N Invert. 818.0, S Invert 818.0*** ***West: 36" dia., N Invert. 818.0, S Invert 818.5***	Does pipe discharge below the OHWM? Is the water treated before discharge?	☐ No ☒ Yes ☐ No ☒ Yes
Type ☒ headwall ☐ end section ☐ other		Dimensions of headwall OR end section (ft) East: length ***24'*** width ***8'*** height ***7'*** West: length ***24'*** width ***8'*** height ***7'***	

☐ **K. MOORING and NAVIGATION BUOYS** (See EZ Guide for Sample Drawing)
- ➡ Provide a site plan showing the distances between each buoy and from the shore to each buoy, and depth (ft) of water at each location.
- ➡ Provide cross-section drawing(s) showing anchoring system(s) and dimensions.

Purpose of buoy ☐ mooring ☐ navigation ☐ scientific structures ☐ swimming ☐ other

Number of buoys	Dimensions of buoys (ft) width height swing radius chain length	Boat Lengths	Type of anchor system

Buoy Location: Latitude . N Longitude -- . W. ➡ Provide a table for multiple buoys.

Do you own the property along the shoreline?	☐ No ☐ Yes	➡ If No, attach an authorization letter from the property owner(s).
Do you own the bottomlands?	☐ No ☐ Yes	➡ If No, attach an authorization letter from the property owner(s).

☐ **L. FENCES**
- ➡ Provide an overall site plan showing the proposed fencing through streams, wetlands or floodplains.
- ➡ Provide a drawing of fence profile showing the design, dimension, post spacing, mesh, and distance from ground to bottom of fence.

Purpose of fence ☐ Airport ☐ Cervidae ☐ Livestock ☐ Residential ☐ Security ☐ Other

Total length (ft) of fence through streams wetlands floodplains	Fence height (ft)	Fence type and material

☐ **M. OTHER** - e.g., structure removal, maintenance or repair, aerator, dry fire hydrant, gold prospecting, habitat structures, scientific measuring devices, soil borings, or survey activities.

Structure description, dimensions and volumes. Complete Sections 10A-C as applicable.

11 Expansion of an Existing or Construction of a New Lake or Pond (See Sample Drawings 4 and 15)
- ➡ Complete Section 10J for outlets and Section 17 for water control structures.
- ➡ Provide elevations, cross-sections and profiles of outlets, dams, dikes, water control structures and emergency spillways to nearest water bodies.

Which best describes your proposed water body use (check all that apply)
☐ mining ☐ recreation ☒ storm water retention basin ☐ wastewater basin ☒ wildlife ☒ other ***Water Quality Treatment***

Water source for lake/pond
☒ groundwater ☐ natural springs ☐ Inland Lake or Stream ☒ storm water runoff ☐ pump ☐ sewage ☐ other

Location of the lake/basin/pond ☒ floodplain ☐ wetland ☐ stream (inline) ☐ upland

Maximum dimensions (ft) length ***1,628*** width ***436*** depth ***13***	Maximum Area: ☒ acres ☐ sq ft ***6.7 Acres at normal pool (Elev. 819.0)***

Has the there been a hydrologic study performed on the site?	☐ No ☒ Yes	➡ If Yes, provide a copy.
Has the DEQ conducted a wetland assessment for this parcel?	☒ No ☐ Yes	➡ If Yes, provide a copy or WIP number:
Has a professional wetland delineation been conducted for this parcel?	☐ No ☒ Yes	➡ If Yes, provide a copy with data sheets.

Spoils Disposal

Dredged or excavated spoils will be placed ☐ on-site ☐ landfill ☐ USACE confined disposal facility ☒ other upland off-site
Disposal will be responsibility of selected contractor.

For disposal, provide a ➡ Detailed spoils disposal area location map and site plan with property lines.
➡ Letter of authorization from property owner of spoils disposal site, if disposed off-site.

12 Activities That May Impact Wetlands (See Sample Drawings 8 & 9). Complete other Sections as applicable.

- Locate your site and wetland information with the DEQ Wetlands Map Viewer at www.mcgi.state.mi.us/wetlands/
- For information on the DEQ's Wetland Identification Program (WIP) visit www.mi.gov/wetlands.
  - ➡ Provide a detailed site plan with labeled property lines, upland and wetland areas, and dimensions and volumes of wetland impacts.
  - ➡ Complete the wetland dredge and wetland fill dimension information below for each impacted wetland area.
  - ➡ Attach tables for multiple impact areas or activities.
  - ➡ Attach at least one cross-section for each wetland dredge and/or fill area; show wetland and upland boundaries on the cross-section.

Has the DEQ conducted a wetland assessment for this parcel?	☒ No ☐ Yes	➡ If Yes, provide a copy or WIP number:
Has a professional wetland delineation been conducted for this parcel?	☐ No ☒ Yes	➡ If Yes, provide a copy with data sheets
Is there a recorded DEQ easement on the property?	☒ No ☐ Yes	➡ If Yes, provide the easement number
Did the applicant purchase the property before October 1, 1980?	☒ No ☐ Yes	➡ If Yes, provide documentation.
Is any grading or mechanized land clearing proposed?	☐ No ☒ Yes	➡ If Yes, label the locations on the site plan.
Has any of the proposed grading or mechanized land clearing been completed?	☒ No ☐ Yes	➡ If Yes, label the locations on the site plan

Proposed Activity

☐ boardwalk or deck (Section 10I)	☐ bridges and culverts (Section 14)	☐ designated environmental area
☐ dewatering	☐ draining surface water	☐ driveway / road
☐ fences (Section 10L)	☒ fill or dredge	☒ restoration
☐ septic system	☒ stormwater discharge (Section 10J)	☐ other

	Dimensions	Area	Average depth (ft)	Volume (cu yd)
FILL	maximum length (ft) ***60*** maximum width (ft) ***20***	☒ acres ☐ sq ft ***.03 acres***	***Less than 0, see section 3***	***360 cy See section 3***
DREDGE	maximum length (ft) ***360*** maximum width (ft) ***157***	☒ acres ☐ sq ft ***0.43***	***10 ft.***	***1289***

Spoils Disposal

Dredged or excavated spoils will be placed ☐ on-site ☐ landfill ☐ USACE confined disposal facility ☒ other upland off-site

For disposal, provide a ➡ Detailed spoils disposal area location map and site plan with property lines.

➡ Letter of authorization from property owner of spoils disposal site, if disposed off-site.

Septic System

The proposed project will be serviced by:
☐ public sewer ☐ private septic system
➡ Show system on plans.

If a private septic system is proposed, has an application for a permit been made to the County Health Department? ☐ No ☐ Yes
If Yes, has a permit been issued? ☐ No ☐ Yes ➡ Provide a copy of the permit.

Describe the wetland impacts, the proposed use or development, and the alternatives considered:
For the Montgomery Drain Improvement Project, all wetlands have been avoided with the exception of Wetland C. Wetland C consists of a low quality wet meadow wetland dominated by reed canary grass (*Phalaris arundinaces*) with marginal wetland hydrology. This wetland, and Wetlands D (not regulated), E (impacted by the proposed development project), and F are wetlands that have reverted from an abandoned golf course and consist of low quality, minimally diverse wetland habitat, including Wetland F which has a forested component. Wetland B, proposed to receive overflow discharge, is a small linear excavated pit that would benefit from additional water input. Total wetland impact for both the Drain and Development project is 1.03 acres with a total of 2.6 acre of mitigation proposed (2.5 to 1 replacement ratio).

Does the project impact more than 1/3 acre of wetland? ☐ No ☒ Yes
➡ If Yes, submit a Mitigation Plan with the type and amount of mitigation proposed. For more information go to www.mi.gov/wetlands

Describe how impacts to waters of the United States will be avoided and minimized:
See Sections 3, 4, and 12 above.

Describe how the impact to waters of the United States will be compensated. OR Explain why compensatory mitigation should not be required for the proposed impacts.
Wetland impacts for both the Montgomery Drain and Development project are proposed within the eastern end of the southern treatment pond. A total of 0.43 acre of wet meadow wetland is to be mitigated for Montgomery Drain Project and 0.60 acre of wet meadow wetland for the development project. As stated above, both wetlands are low in plant diversity and are considered low quality areas with respect to wetland values and functions.

A total of 2.6 acres of new wetland is proposed to be created resulting in a replacement ratio exceeding 2 to 1. Also, additional treatment wetlands will be created (3.76 acre plus deeper open water) that are not considered part of the wetland mitigation (see attached conceptual mitigation plans). A more specific description of the proposed mitigation is presented below. Upon issuance of a permit, final plans and details will be submitted for MDEQ review and approval.

Goals of the Mitigation:
The goal of the mitigation plan is to create the new, self-sustaining wetlands to offset the unavoidable loss of the wetlands on site (type and quality discussed above and in Section 4). The intent is to provide benefits above and beyond that currently provided by Wetlands C and E. We expect the new wetlands, at a minimum, to provide improved water storage, improved water quality, a wider diversity of plant species, and a wider diversity of habitat for reptiles, amphibians, furbearers, waterfowl, and other avian species including raptors and neo-tropical migrants. Wetlands C and E currently provide minimal benefits which mostly include a water quality and water storage function.

Location of the Mitigation:
The wetland mitigation is located on the project site near the Red Cedar River. Please see the attached exhibits.

Acreage and Ecological Type
As discussed above, total wetland mitigation acreage is 2.6 acres of new wetland creation broken down as follows:

- 0.43 acre of scrub shrub wetland.
- 1.63 acre of shallow emergent wetland.
- 0.54 acre of deep emergent wetland.

Baseline Conditions
The proposed mitigation site (location) consists of a portion of an old golf course that has been abandoned and is currently used as a passive park. The site is relatively flat, located within the floodway of the Red Cedar River, and is open grassland routinely mowed by the city. No existing wetlands are located within the mitigation site.

Wetland Creation and Water Supply
As the mitigation plans show, 2.6 acres of wetland will be created at the eastern end of the proposed treatment pond. Mechanical excavations will be used to create depressions to designed elevations and topsoil will be stockpiled separately and replaced within the mitigation wetlands to designed elevations. All remaining soil will be placed at an upland site.

The outlet for the mitigation is at an elevation of 819, which is considered our designed surface water elevation. Grading for the mitigation will result in the following water depths for each wetland type, at designed water elevation.

- Scrub shrub -1 to 0 feet (saturated soils)
- Shallow emergent 0 to 1.5 feet
- Deep emergent 1.5 to 2.5 feet

Hydrology for the wetland primarily includes periodic flooding of the Red Cedar River and water inputs from the Montgomery Drain Project. Design features have been incorporated to provide water quality treatment prior to stormwater entering the mitigation wetlands. In addition to the LID features identified in Section 3, and the proposed treatment ponds, a 50 foot wide buffer is proposed between the mitigation wetland and treatment wetlands. The elevation of the buffer will be at the designed surface water elevation resulting in saturated soils to the surface (not included in mitigation acreage). The establishment of emergent, and possibly wet meadow plant species, will provided added treatment of stormwater prior to entering the mitigation wetlands.

Long-Term Preservation
While the ultimate goal of this project is improvements to water quality and flow of the Montgomery Drain, the drain and drainage/treatment system will still be considered a public utility which, by statute, the Drain Commissioner is required to maintain. Long term preservation of the mitigation wetlands is proposed through a conservation easement with the MDEQ. However, alteration to the state's standard conservation easement model may have to be discussed prior to developing and signing the easement.

13 Floodplain Activities (See Sample Drawing 5 and others. Complete other applicable sections.)

- For more information go to www.mi.gov/floodplainmanagement. This site also lists the projects and requirements for an expedited floodplain review under "Expedited Review Information for Minor Floodplain Projects."
- Examples of projects proposed within the non-floodway portions of the 100-year-floodplain which may qualify for an expedited review: Open pile decks and boardwalks; residences, commercial/industrial facilities, garages and accessory structures; parking lots; pavilions, gazebos, large community playground structures; residential swimming pools
- Examples of projects proposed within the floodway portions of the floodplain which may qualify for an expedited review: Open pile decks and boardwalks, (non-enclosed) that are anchored to prevent floatation and that do not extend over the bed and bank of a watercourse; parking lots constructed at grade or resurfacing that is no more than 4 inches above the existing grade; dry hydrants that do not require fill placement; scientific structure such as staff gauges, water monitoring devices, water quality testing devices, and core sampling devices which meet specific design criteria and fish structures that meet specific design criteria.
- For expedited review include:
  - Photographs of the work site labeled to identify what is being shown and with the direction of the photo clearly indicated. Include photographs of any river or stream adjacent to the project.
  - A letter or statement from the local unit of government acknowledging your proposed application. See the website for sample wording.
- A hydraulic analysis or hydrologic analysis may be required to fully assess floodplain impacts.
- The state building code requires an Elevation Certificate for any building construction or addition in a floodplain. A sample form can be found at www.fema.gov/nfip/elvinst.shtm.
  - Attach additional sheets or tables for multiple proposed floodplain activities and provide hydraulic calculations.
  - Show reference datum used on plans.

Proposed Activity ☒ fill ☒ excavation or cut ☐ other	100-year floodplain elevation (ft) (if known) ***836.2*** Datum ☐ NGVD 29 ☒ NAVD 88 ☐ other
Site is 3-15 feet above ☒ ordinary high water mark (OHWM) OR ☐ observed water level. Date of observation (M/D/Y) ***June 2015***	
Fill volume below the 100-year floodplain elevation (cu yds) ***3,151 cy See section 3 and Exhibits***	Compensating cut volume below the 100-year floodplain elevation (cu yds) ***Total Net Cut = 164,656 cy 10-yr Compensating cut = 35,200 cy. See section 3, Tab 5 and Exhibits***

Buildings and/or Additions

Type of construction is ☐ residential ☐ garage/pole barn ☐ non residential ☐ other

Construction is ☐ new ☐ addition AND Serviced by ☐ public sewer ☐ private septic ☐ other

Lowest adjacent grade (ft): existing proposed

datum ☐ NGVD 29 ☐ NAVD 88 ☐ other

Existing Structure Information	Proposed Structure Information
Foundation type ☐ basement ☐ concrete slab on grade ☐ pilings ☐ crawl space ☐ other	Foundation type ☐ basement ☐ concrete slab on grade ☐ pilings ☐ crawl space ☐ other
Foundation floor elevation (ft)	Foundation floor elevation (ft)
Height of crawl space/basement from finished foundation floor to bottom of floor joists (ft)	Height of crawl space/basement from finished foundation floor to bottom of floor joists (ft)
Elevation of 1st floor above basement floor/crawl space (ft)	Elevation of 1st floor above basement floor/crawl space (ft)

For enclosed areas below the flood elevation, such as a crawl space, garages and accessory structures:

Area of proposed foundation (sq ft)

Elevation of proposed enclosed area (ft) datum ☐ NGVD 29 ☐ NAVD 88 ☐ other

Number of flood vents net opening of each vent (sq inches) lowest elevation of flood vents (ft)

14 Bridges and Culverts Including Foot and Cart Bridges. (See EZ Guides and Sample Drawings 5, 14A, 14B, 14C, 14D.)

- Complete other applicable Sections, including 10A-C.
- A hydraulic analysis or hydrologic analysis may be required to fully assess impacts. ➡Attach hydraulic calculations.
- High Water Elevation - describe reference point and highest known water level above or below reference point and date of observation.

➡Attach additional sheets for multiple bridges and/or culverts.

➡Provide detailed site-specific drawings of existing and proposed Plan and Elevation View at a scale adequate for detailed review.

➡Provide all information in the boxes below; do not write in a reference to plan sheets. Show reference datum used on plans.

Stream Information

The site has a high water elevation (ft) ☐ above or ☐ below the Reference Point of Date observed	
Reference datum used ☐ NGVD 29 ☐ NAVD 88 ☐ IGLD 85 (Great Lakes coastal areas) ☐ other	
Average stream width (ft) at the ordinary high water mark (OHWM) outside the influence of any ponding or scour holes around the structure — Upstream	
Average stream width (ft) at the ordinary high water mark (OHWM) outside the influence of any ponding or scour holes around the structure — Downstream	
Cross-sectional area of primary channel (sq ft) (See Sample Drawing 14C for more information)	
The width of the stream where the water begins to overflow its banks. Bankfull width (ft)	
The invert of the stream 100-feet from structure (ft) — Upstream	
The invert of the stream 100-feet from structure (ft) — Downstream	
Is the existing culvert perched? ☐ No ☐ Yes If Yes, provide a profile of the channel bottom at the high and low points for a distance of 200 feet upstream and downstream of the culvert.	

Complete this form for each bridge / culvert location.		Existing	Proposed
Bridge			
Number of bridge spans			
Bridge type (concrete box beam, concrete I-beam, timber, etc.)			
Bridge span (length perpendicular to stream) (ft)			
Bridge width (parallel to stream) (ft)			
Bottom of bridge beam (ft)	Upstream		
	Downstream		
Stream invert elevation at bridge (ft)	Upstream		
	Downstream		
Bridge rise from bottom of beam to streambed (ft)			
Culvert			
Number of culverts			
Culvert type (arch, bottomless, box, circular, elliptical, etc.)			
Culvert material (concrete, corrugated metal, plastic, etc.)			
Culvert length (ft)			
Culvert ☐ width ☐ diameter (ft)			
Culvert height prior to any burying (ft)			
Depth culvert will be buried (ft)			
Elevation of culvert crown (ft)	Upstream		
	Downstream		
Higher elevation of ☐ culvert invert OR ☐ streambed within culvert (ft)	Upstream		
	Downstream		
Complete for both Bridges and Culverts			
Entrance design (mitered, projecting, wingwalls, etc.)			
Total structure waterway opening above streambed (sq ft)			
Total structure waterway area below the 100-year elevation (sq ft) (if known)			
Elevation of road grade at structure (ft)			
Elevation of low point in road (ft)			
Distance from low point of road to mid-point of bridge crossing (ft)			
Length of approach fill from edge of bridge/culvert to existing grade (ft)			

A Licensed Professional Engineer may certify that your project will not cause a harmful interference for a range of flood discharges up to and including the 100-year flood discharge. The "Required Certification Language" is found under "forms" on the "maps, forms and documents" link from the www.mi.gov/jointpermit page or a copy may be requested by phone, email, or mail. A hydraulic report supporting this certification may also be required.

Is Certification Language attached? ☐ No ☐ Yes

15 Stream, River, or Drain Construction , Relocation and Enclosure Activities

- Complete Section 10C for riprap activities.
- If side casting or other proposed activities will impact wetlands or floodplains, complete Sections 12 and 13, respectively.
  - ➡ Provide a scaled overall site plan showing existing lakes, streams, wetlands, and other water features; existing structures; and the location of all proposed structures and land change activities.
  - ➡ Provide scaled cross-section (elevation) drawings necessary to clearly show existing and proposed conditions.
  - ➡ For activities on legally established county drains, provide original design and proposed dimensions and elevations.

Stream Information

Water elevation (ft) datum ☐ NGVD 29 ☐ NAVD 88 ☐ IGLD 85 (Great Lakes coastal areas) ☐ other
➡ Show elevation on plans with description.

Dimensions (ft) of existing stream/drain channel (ft) length width depth

Existing channel average water depth in a normal year (ft)

Proposed Activity ☐ enclosure ☐ improvement ☐ maintenance ☐ new drain ☐ relocation ☐ wetlands ☐ other

If an enclosed structure is proposed, check material type ☐ concrete ☐ corrugated metal ☐ plastic ☐ other

Dimensions (ft) of the structure: diameter length	Volume of fill (cu yds)

Will old/enclosed stream channel be backfilled to top of bank grade? ☐ No ☐ Yes

Length of channel to be abandoned (ft)	Volume of fill (cu yds)
Dimensions (ft) of improved, maintained, new, relocated or wetland stream/drain channel. length width depth	Volume of dredge/excavation (cu yds)
How will slopes and bottom be stabilized?	Proposed side slopes (vertical / horizontal)

Spoils Disposal

Dredged or excavated spoils will be placed ☐ on-site ☐ landfill ☐ USACE confined disposal facility ☐ other upland off-site
For disposal, provide a
➡ Detailed spoils disposal area location map and site plan with property lines.
➡ Letter of authorization from property owner of spoils disposal site, if disposed off-site.

16 Drawdown of an Impoundment

- If wetlands will be impacted, complete Section 12.

Type of drawdown ☐ over winter ☐ temporary ☐ one-time event ☐ annual event ☐ permanent (dam removal) ☐ other

Reason for drawdown

Has there been a previous drawdown? ☐ No ☐ Yes If Yes, provide date (M/D/Y)		Previous DEQ permit number, if known
Does waterbody have established legal lake level? ☐ No ☐ Yes ☐ Not Sure		Dam ID Number, if known
Extent of vertical drawdown (ft)	Impoundment design head (ft)	Number of adjoining or impacted property owners
Date drawdown would start (M/D/Y)	Date drawdown would stop (M/D/Y)	Rate of drawdown (ft/day)
Date refilling would start (M/D/Y)	Date refill would end (M/D/Y)	Rate of refill (ft/day)
Type of outlet discharge structure to be used ☐ surface ☐ bottom ☐ mid-depth	Impoundment area at normal water level (acres)	Sediment depth behind impoundment discharge structure (ft)

17 Dam, Embankment, Dike, Spillway, or Control Structure Activities (See Sample Drawing 15)

- For more information go to www.mi.gov/damsafety. If wetlands will be impacted, complete Section 12.
- Information on removing a dam is available at www.mi.gov/damsafety and following the Related Link –Dam Management.

➡➡Attach detailed signed and sealed engineering plans for a Part 315 dam repair, dam alteration, dam abandonment, or dam removal.

➡Part 315 Dam Safety application fees are added to all other application fees.

➡Mail applications for dams regulated under Part 315 to DEQ, WRD, P.O. BOX 30458, LANSING, MI 48909-7958, attention Dam Safety.

Proposed Activity	☐ abandonment	☐ alteration	☐ enlargement of an existing dam
	☐ removal	☐ repair	☐ reconstruction of a failed dam
	☐ new dam construction	☐ other	

Dam ID Number, if known	Type of outlet discharge structure ☐ surface ☐ bottom ☐ mid-depth

Will proposed activities require a drawdown of the waterbody to complete the work? ☐ No ☐ Yes ➡ If Yes, complete Section 16.

Structural height (difference between embankment top elevation and streambed elevation at downstream embankment toe) (ft) _____

Hydraulic Height (difference between design flood elevation and streambed elevation at downstream embankment toe) (ft)	Impoundment size at design flood elevation (acres)

Does dam meet the criteria for regulation under Part 315? (i.e. hydraulic height of 6 feet or more and an impoundment size at the design flood of 5 surface acres or more) ☐ No ☐ Yes

Dredging/excavation volume (cu yd)	Fill volume (cu yd)	Riprap volume (cu yd)

Will a water diversion during construction be required? ☐ No ☐ Yes

If Yes, describe how the stream flow will be controlled through the dam construction area during the proposed project activities:

Complete the following for a new dam, reconstruction of a failed dam or enlargement of an existing dam

For Part 315 regulated dams, the following must be attached:

➡ Site-specific conceptual plans of the dam for resource impact review (An engineering report and detailed engineering plans are not required until the project has been determined to be permitable).

➡ A description and evaluation of the loss of natural resources associated with the project.

➡ A description of the natural resources that are associated with or created by the impoundment and how they offset the natural resources lost by the creation of the impoundment.

➡ An assessment of all known existing and potential adverse effects within the scope of the project.

Embankment dimensions	length (ft)	top width (ft)	bottom width (ft)	slopes (vertical / horizontal)	Upstream Downstream

Have soil borings been taken at dam location?	☐ No ☐ Yes	➡ If Yes, attach results.
Do you have flowage rights to all proposed flooded property at the design flood elevation?	☐ No ☐ Yes	➡ If No, provide a letter of authorization from the property owner.

Applications for Part 315 regulated dam removal projects must also include the following:

An evaluation of the capacity of the remaining structure to pass flood flows.
An evaluation of the quantity and quality of the sediments behind the impoundment.
A description of the methods to be employed to control sediments.
An assessment of all known existing and potential adverse impacts within the scope of the project.

18 Utility Crossings (See Sample Drawings 12 and 13, and EZ Guide)

- If side casting is proposed, complete Sections 10A and 10B. If spoils will be placed in or impact wetlands, complete Section 12.
  - ➡ Attach additional sheets or tables with the requested information as needed for multiple crossings.
  - ➡ For wetland crossings using the open trench method show clay plugs at the wetland/upland boundaries on the plans.

Crossing of ☐ Inland Lake or Stream ☐ floodplain ☐ Great Lake ☐ wetlands (also complete Section 12)

What method will be used to construct the crossings? ☐ directional boring ☐ jack and bore ☐ open trench ☐ plow / knife ☐ flume

Utility Type	Number of lake or stream crossings	Number of wetland crossings	Pipe diameter with casing (in)	Pipe length per crossing (ft)	Distance below streambed or wetland (in)	Trench width (ft)
☐ sanitary sewer						
☐ storm sewer						
☐ watermain						
☐ cable						
☐ electric						
☐ fiber optic cable						
☐ oil/gas pipeline						

19 Marina Construction, Expansion and Reconfiguration (See Sample Drawing 21)

- For more information go to www.mi.gov/marinas
- Marinas located on the Great Lakes, including Lake St. Clair, may be required to secure leases or conveyances from the state of Michigan to place structures on the bottomlands. If a conveyance is necessary, an application must be submitted before the Joint Permit Application can be determined complete.
  - ➡ Fully complete Section 10 E. For multiple structures provide a table with the requested information.
  - ➡ Enclose a copy of any current pump-out agreement with another marina facility, if on-site sanitary pump out facilities are not available.
  - ➡ Attach a copy of the property legal description, mortgage survey, or a property boundary survey to your application.
  - ➡ The WRD may require a riparian interest area (RIA) estimate survey, sealed by a licensed surveyor, in order to determine whether the proposed project will adversely impact riparian rights. Include any available sealed RIA estimate survey and/or written authorizations from affected adjoining riparian owners with your application.

Proposed Marina Activity ☐ New construction ☐ Expansion ☐ Reconfiguration

Do you have an existing Great Lake Conveyance? ☐ No ☐ Yes For more information visit www.mi.gov/deqgreatlakes.

Are sanitary pump-out facilities available? ☐ No ☐ Yes | Is there a pump out agreement? ☐ No ☐ Yes If Yes, provide a copy.

Marina Description	Current Count	Final Count
Number of boat slips/wells (do not include broadside dockage or mooring buoys)		
Lineal feet of broadside dockage		
Maximum number of boats at broadside dockage		
Number of mooring buoys		
Number of launch ramps/lanes		

20 Critical Dune Areas and High Risk Erosion Areas (See Sample Drawings 19 and 20)

Critical Dune Areas (See Sample Drawing 20)

- **Although not required, submitting PHOTOGRAPHS of the site may provide for a faster application review.**
- For more information go to www.mi.gov/jointpermit, select "Sand Dune Protection" under "Related Links."
- All property boundaries and proposed structure corners, including decks, septic systems, water wells, driveways, grading, and terrain alteration locations must be staked before the WRD site inspection.
- Scaled overhead and cross-section plans must include all property boundaries, locations, and dimensions of all existing structures and impacted areas, and all proposed structures, terrain alterations, and construction access. Cross-sections must show existing and proposed grades, including foundations.
- Construction in critical dune areas on slopes greater than 33 percent (1 vertical: 3 horizontal) is prohibited without a special exception.
- Construction in critical dune areas on slopes that measure from 25 percent (1 vertical: 4 horizontal) to less than 33 percent requires sealed plans prepared by a registered architect or licensed professional engineer.

High Risk Erosion Areas (See Sample Drawing 19)

- For more information go to www.mi.gov/jointpermit, select "HREA" under "Related Links."
- All property boundaries, proposed structure corners, and septic system locations must be staked before the WRD site inspection.
- Scaled overhead plans must include all property boundaries, and the location and dimensions of all structures and septic systems must be included.
- Additional information, including the building construction plans, may be required to complete the application review.

Critical Dune Areas

Parcel dimensions (ft) width depth	Date project staked (M/D/Y)
Property is a ☐ platted lot ☐ unplatted parcel	Year current property boundaries created

Dune habitat present in Building Site and access route (check all that apply): ☐Wooded ☐Open Dune ☐Shrubs ☐Bare Sand ☐Lakefront Lot ☐MNFI Community if known:_____

Type of construction activities ☐ addition ☐ driveway ☐ garage ☐ new home ☐ renovation ☐ septic ☐ deck(s) ☐ other

☐ Provide a sand relocation plan with location and dimensions of disposal area. Indicate ☐ on-site OR ☐ off-site
If on-site show location and how the disposal site will be accessed on the plans. Indicate the depth of the disposed sand on the plans.

☐ Provide the permit or letter from the County Enforcing Agent stating the project complies with Part 91 (Soil Erosion and Sedimentation Control).

The proposed project will be serviced by ☐ public sewer ☐ private septic system.
➡ On the plans, show the location and dimensions of the private septic system.
If a private septic system is proposed, has a permit been issued by the health department? ☐ No ☐ Yes
➡ If Yes, provide a copy of the permit for all Critical Dune Area projects.

☐ Provide a copy of the vegetation assurance letter.
☐ Provide a re-vegetation plan, including #_____ of trees to be removed and #_____ of trees to be replanted.

Proposed Utility Installation	Proposed New Construction
Utility Installation Method ☐ directional bore ☐ plowing in ☐ open trench ☐ other	Foundation type ☐ basement ☐ concrete slab ☐ pilings ☐ crawl space ☐ other
➡ Show utility locations and dimensions on the site plan.	Area of existing structure (sq ft)
➡ Show construction access route on the site plan.	Area of proposed structure (sq ft)
➡ Show existing and proposed grades on the cross-section.	Area of existing deck (sq ft)
➡ Show locations of vegetation to be removed on the site plan.	Area of proposed deck (sq ft)

Provide the following information for special use projects:
(a) Lot size, width, density, and front and side setbacks.
(b) Storm water drainage that provides for disposal of drainage water without serious erosion.
(c) Methods for controlling erosion from wind and water.
(d) Re-stabilization plan.
(e) Environmental Impact Statement.

High Risk Erosion Areas

Parcel dimensions (ft) width depth | Date project staked (M/D/Y)

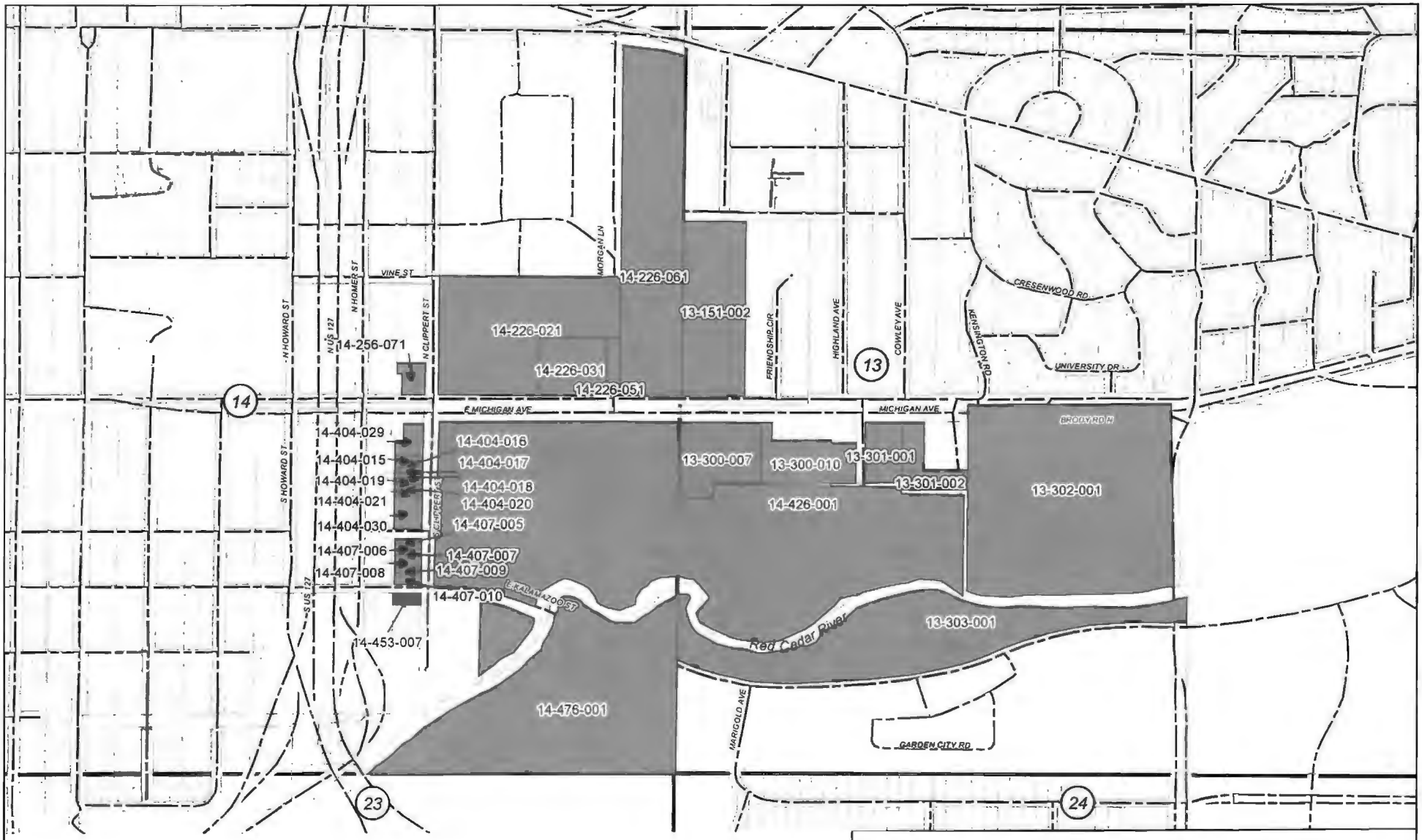
Existing Structure Information	Proposed New Construction
Foundation type ☐ basement ☐ concrete slab ☐ pilings ☐ crawl space ☐ other	Foundation type ☐ basement ☐ concrete slab ☐ pilings ☐ crawl space ☐ other
Material above foundation wall ☐ block ☐ log ☐ stud frame ☐ other	Material above foundation wall ☐ block ☐ log ☐ stud frame ☐ other
Siding material ☐ block ☐ vinyl ☐ wood ☐ other	Siding material ☐ block ☐ vinyl ☐ wood ☐ other
Area of the foundation, excluding attached garage (sq ft)	Area of the foundation, excluding attached garage (sq ft)
Area of the garage foundation (sq ft)	Area of the garage foundation (sq ft)

If renovating or restoring an existing structure, indicate the renovation or restoration cost $

Current structure replacement value $

Tax assessed value of existing structure excluding land value $ Assessment Year

Provide the number of individual living units in the proposed building



LEGEND

- PARCELS INCLUDED ON NOTIFICATION LIST
- PARCELS
- ROADS
- INGHAM COUNTY SECTIONS

N

0 300 600 1,200

1 " = 1,000 '

PARCEL NOTIFICATION LIST MAP

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC - NOTIFICATION - 1

OWNERNAME	OWNERSTREE	OWNERCITY	OWNERSTATE	OWNERZIP	PARCELNUM
4TH STREET SOUTH II L L C	3333 BEVERLY RD	HOFFMAN ESTATES	IL	60179-0001	33-01-01-14-226-021
ADMIRAL PETROLEUM CO	3029 E KALAMAZOO ST	LANSING	MI	48912	33-21-01-14-407-010
BADGLEY DOUGLAS JUDITH E TREVOR D	304 S CLIPPERT ST	LANSING	MI	48912	33-21-01-14-407-006 33-21-01-14-407-007 33-21-01-14-407-005
CATA	4615 TRANTER ST	LANSING	MI	48910	
CHARTER TOWNSHIP OF LANSING	3209 W MICHIGAN AVE	LANSING	MI	48917	
CITY OF EAST LANSING	410 ABBOT RD	EAST LANSING	MI	48823	
CITY OF LANSING	124 W MICHIGAN AVE FL 8TH	LANSING	MI	48933-1665	33-01-01-14-226-061 33-01-01-14-426-001
CKJ PROPERTIES LLC	1919 S CREYTS RD	LANSING	MI	48917	33-20-01-13-300-007
CV EAST LANSING MI LLC	2211 YORK RD STE 222	OAK BROOK	IL	60523	33-20-01-13-301-001
DTNKEK LLC	2502 LAKE LANSING RD STE C	LANSING	MI	48912	33-21-01-14-404-016 33-21-01-14-404-017 33-21-01-14-404-018 33-21-01-14-404-019 33-21-01-14-404-020
E MICHIGAN (3301) PARTNERS	1111 MICHIGAN AVE STE 201	EAST LANSING	MI	48823-4050	33-01-01-13-151-002
INGHAM COUNTY	PO BOX 215	MASON	MI	48854	33-20-01-13-500-###
INGHAM COUNTY ROAD DEPARTMENT	301 BUSH STREET, PO BOX 38	MASON	MI	48854-0038	
JLN OF MIDMICHIGAN LLC	314 S CLIPPERT ST	LANSING	MI	48912	33-21-01-14-407-008
JLN OF MIDMICHIGAN LLC	318 S CLIPPERT ST	LANSING	MI	48912	33-21-01-14-407-009

OWNERNAME	OWNERSTREE	OWNERCITY	OWNERSTATE	OWNERZIP	PARCELNUM
KAY INVESTMENT CO	1919 S CREYTS RD	LANSING	MI	48917-9534	33-01-01-14-226-031
LANSING FARM PRODUCTS	201 N WASHINGTON SQ STE 900	LANSING	MI	48933-1323	33-01-01-14-256-071
LANSING RETAIL CENTER L L C	300 FRANDOR AVE	LANSING	MI	48912-5290	33-01-01-14-226-051
MDOT	PO BOX 30050	LANSING	MI	48909	
MICHIGAN STATE UNIVERSITY	535 CHESTNUT RM 246	EAST LANSING	MI	48824	33-20-01-13-302-001 33-20-01-13-303-001 33-20-01-14-476-001
OLD CANTON & CEDAR GREENS LLC	2502 LAKE LANSING RD STE C	LANSING	MI	48912	33-20-01-13-301-002
RODRIGUEZ BLANCA M	214 S CLIPPERT ST	LANSING	MI	48912	33-21-01-14-404-021
RW APARTMENTS LLC	2502 LAKE LANSING RD STE C	LANSING	MI	48912	33-21-01-14-404-030
STEVENS MARY E	128 S CLIPPERT ST	LANSING	MI	48912	33-21-01-14-404-015
TASSOPOULOS REAL ESTATE CO. LLC	3020 E KALAMAZOO ST	LANSING	MI	48912	33-21-01-14-453-007
THE OAKS ENTERPRISE LTD PARTNERSHIP	2502 LAKE LANSING RD SUITE C	LANSING	MI	48912	33-20-01-13-300-010
TRIO DEVELOPMENT	3030 E MICHIGAN AVE	LANSING	MI	48917	33-21-01-14-404-029

OLD CANTON & CEDAR GREENS LLC
2502 LAKE LANSING RD STE C
LANSING, MI, 48912

RODRIGUEZ BLANCA M
214 S CLIPPERT ST
LANSING, MI, 48912

RW APARTMENTS LLC
2502 LAKE LANSING RD STE C
LANSING, MI, 48912

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LANSING, MI, 48912

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LANSING, MI, 48912

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2502 LAKE LANSING RD SUITE C
LANSING, MI, 48912

TRIO DEVELOPMENT
3030 E MICHIGAN AVE
LANSING, MI, 48917

E MICHIGAN (3301) PARTNERS
1111 MICHIGAN AVE STE 201
EAST LANSING, MI, 48823-4050

INGHAM COUNTY
PO BOX 215
MASON, MI, 48854

INGHAM COUNTY ROAD DEPARTMENT
301 BUSH STREET, PO BOX 38
MASON, MI, 48854-00388

JLN OF MIDMICHIGAN LLC
314 S CLIPPERT ST
LANSING, MI, 48912

JLN OF MIDMICHIGAN LLC
318 S CLIPPERT ST
LANSING, MI, 48912

KAY INVESTMENT CO
1919 S CREYTS RD
LANSING, MI, 48917-9534

LANSING FARM PRODUCTS
201 N WASHINGTON SQ STE 900
LANSING, MI, 48933-1323

LANSING RETAIL CENTER L L C
300 FRANDOR AVE
LANSING, MI, 48912-5290

MDOT
PO BOX 30050
LANSING, MI, 48909

MICHIGAN STATE UNIVERSITY
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EAST LANSING, MI, 48824

4TH STREET SOUTH II L L C
3333 BEVERLY RD
HOFFMAN ESTATES, IL, 60179-0001

ADMIRAL PETROLEUM CO
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LANSING, MI, 48912

BADGLEY DOUGLAS JUDITH E TREVOR D
304 S CLIPPERT ST
LANSING, MI, 48912

CATA
4615 TRANTER ST
LANSING, MI, 48910

CHARTER TOWNSHIP OF LANSING
3209 W MICHIGAN AVE
LANSING, MI, 48917

CITY OF EAST LANSING
410 ABBOT RD
EAST LANSING, MI, 48823

CITY OF LANSING
124 W MICHIGAN AVE FL 8TH
LANSING, MI, 48933-1665

CKJ PROPERTIES LLC
1919 S CREYTS RD
LANSING, MI, 48917

CV EAST LANSING MI LLC
2211 YORK RD STE 222
OAK BROOK, IL, 60523

DTNKEK LLC
2502 LAKE LANSING RD STE C
LANSING, MI, 48912

License, which has been routinely processed without objection, and is ready for final action by this Council; and,

WHEREAS, all required signatures have been obtained supporting the application for a fireworks display license;

NOW, THEREFORE, BE IT RESOLVED, the Lansing City Council, hereby, approves the application for a City License as follows:

FIREWORKS DISPLAY LICENSE:

Sean Conn/Brian Klapper of Big Fireworks for a public display of fireworks in the City of Lansing at Adado Riverfront Park to be held on Saturday May 3, 2014.

By Councilmember Yorko

Motion Carried

RESOLUTION #2014-102
BY THE COMMITTEE ON GENERAL SERVICES
RESOLVED BY THE CITY COUNCIL OF THE CITY OF LANSING

WHEREAS, the City Clerk has forwarded an application for a City License, which has been routinely processed without objection, and is ready for final action by this Council; and,

WHEREAS, all required signatures have been obtained supporting the application for a fireworks display license;

NOW, THEREFORE, BE IT RESOLVED, the Lansing City Council, hereby, approves the application for a City License as follows:

FIREWORKS DISPLAY LICENSE:

Roger L. Bonney/Night Magic Displays for a public display of fireworks in the City of Lansing at 505 E. Michigan Ave/Lansing Lugnuts, to be held on May 2, 16, 17, 30, June 2, 7, 20, 21, July 4, 5, 18, 19 and August 8, 9, 22, 23, 30, 31.

By Councilmember Yorko

Motion Carried

RESOLUTION #2014-103
BY THE COMMITTEE ON GENERAL SERVICES
RESOLVED BY THE CITY COUNCIL OF THE CITY OF LANSING

WHEREAS, Handicapper Advocacy Alliance, Inc. has requested a resolution of recognition as a Local Nonprofit Organization operating in the City of Lansing for the purpose of obtaining a charitable gaming license pursuant to MCL 432.103 (9); and

WHEREAS, the City Attorney has reported that, based on a review of the documentation submitted, the applicant qualifies as a Local Nonprofit Organization;

NOW, THEREFORE, BE IT RESOLVED that the Lansing City Council, hereby, recognizes the Handicapper Advocacy Alliance, Inc. as a Local Nonprofit Organization operating in the City of Lansing for the purpose of obtaining a charitable gaming license.

BE IT FURTHER RESOLVED the City Clerk is requested to provide a copy of this resolution to the Handicapper Advocacy Alliance, Inc. of 2812 N. Martin Luther King Jr. Blvd Lansing, MI 48906.

By Councilmember Yorko

Motion Carried

RESOLUTION #2014-104
BY THE COMMITTEE ON WAYS AND MEANS
RESOLVED BY THE CITY COUNCIL OF THE CITY OF LANSING

WHEREAS, the City of Lansing is a Qualified Voter File (QVF) Replica Site using equipment that is no longer being supported by the manufacturers; and

WHEREAS, the Michigan Department of State has authorized a grant to provide 100% funding new equipment and software for the Replica Server;

NOW, THEREFORE, BE IT RESOLVED, that the Lansing City Council approves acceptance of the Qualified Voter File (QVF) Oracle/Equipment Upgrade Project grant for the purposes of upgrading the Qualified Voter File infrastructure to meet the objectives of Michigan's HAVA State Plan;

BE IT FURTHER RESOLVED, that City Clerk Chris Swope is authorized to sign the grant agreement on behalf of the City of Lansing;

BE IT FINALLY RESOLVED, the Administration is authorized to receive the funds, create the necessary accounts, and make necessary transfers for administration in accordance with the requirements of the grantor.

By Councilmember Wood

Motion Carried

RESOLUTION #2014-105
BY THE COMMITTEE ON WAYS AND MEANS
RESOLVED BY THE CITY COUNCIL OF THE CITY OF LANSING

WHEREAS, Averill Elementary School and Forest View Elementary School are Polling Places for the City of Lansing which need ADA accessibility improvements;

WHEREAS, the Michigan Department of State has authorized a grant and work plan to provide 100% funding of improvements at Averill Elementary School and Forest View Elementary School;

NOW, THEREFORE, BE IT RESOLVED, that the Lansing City Council approves acceptance of the Polling Place Accessibility Improvement Program grant for the purposes of making ADA accessibility improvements at Averill Elementary School and Forest View Elementary School;

BE IT FURTHER RESOLVED, that City Clerk Chris Swope is authorized to sign the grant agreement on behalf of the City of Lansing;

BE IT FINALLY RESOLVED, the Administration is authorized to receive the funds, create the necessary accounts, and make necessary transfers for administration in accordance with the requirements of the grantor.

By Councilmember Wood

Motion Carried

RESOLUTION #2014-106
BY THE COMMITTEE ON WAYS AND MEANS
RESOLVED BY THE CITY COUNCIL OF THE CITY OF LANSING

WHEREAS, the City of Lansing ("City"), acting through and by its legislative body, Lansing City Council ("Council") recognizes that it is necessary for the public health to clean out, relocate, widen, deepen, straighten, tile, extend, add branches, relocate along a highway, and/or install devices to purify the flow of the Montgomery Drain, also known as Montgomery Drain Extension ("Montgomery Drain"), pursuant to

Chapter 20 of Public Act 40 of 1956, as amended ("Michigan Drain Code"), and that this maintenance and improvement work is required at this time due to flooding of parcels within the Montgomery Drain Drainage District and due to pollution 44of the Montgomery Drain, resulting in pollution of the waters of the state.

WHEREAS, a portion of the lands to be benefited by the Montgomery Drain is located within the City; and

WHEREAS, the City recognizes that it will be subject to assessment to pay for a percentage of the costs of the maintenance and improvement to the Montgomery Drain; and

WHEREAS, as authorized in Resolution #2014-030 of the Council, the City previously submitted a Notice of Intent to File Petition with the Ingham County Drain Commissioner; and

WHEREAS, the Council held a properly noticed hearing pursuant to Section 489a of the Michigan Drain Code, MCL 280.489a on April 7, 2014;

WHEREAS, the Council recognizes the that ICDC cannot start the maintenance and improvement to the Montgomery Drain until two or more of the public corporations which will be subject to assessments submit duly executed petitions under Chapter 20 of the Michigan Drain Code; and

WHEREAS, during the April 7, 2014 public hearing the ICDC had informed the Council that the County of Ingham and the Michigan Department of Transportation are considering to file the required second petition with the ICDC to proceed with the maintenance and improvement of the Montgomery Drain under Chapter 20 of the Michigan Drain Code; and

WHEREAS, the Council has determined it may be necessary to levy special assessments, fees or charges under Section 490 of Public Act 40 of 1956, as amended; and

NOW BE IT FURTHER RESOLVED, pursuant to Chapter 20 of Public Act 40 of 1956, as amended, on behalf of the City of Lansing, the City Clerk is authorized to execute a Petition for the cleaning out, relocating, widening, deepening, straightening, tiling, extending, adding branches, relocating along a highway, and/or installing devices to purify the flow of the Montgomery Drain.

BE IT RESOLVED, that immediately following this meeting, the City Clerk shall forward to the Ingham County Drain Commissioner a copy of this Resolution and an executed Petition for the cleaning out, relocating, widening, deepening, straightening, tiling, extending, adding branches, relocating along a highway, and/or installing devices to purify the flow of the drain known and designated as the Montgomery Drain.

By Councilmember Wood to adopt the resolution

Clerk Swope shared that the Council received written communications in support of the resolution from Elizabeth Wheeler, Joan Nelson of the Allen Neighborhood Center and Suzanne Love in addition to Mike Jones who requesed a delay in the vote until a vegetative study is complete.

Councilmember Wood stated that it takes two petitions to start the process, when the Council gets to the assessment phase it will be a very open process. She also stated that regardless of the Red Cedar Renaissance Development, this drain project will need to go forward.

Councilmember Wood requested a roll call vote.

Motion Carried by the following roll call vote:

Yeas: Councilmembers Boles, Dunbar, Houghton, Brown Clarke, Quinney, Washington, Wood, Yorko

Nays. None

RESOLUTION #2014-107

BY THE PLANNING AND DEVELOPMENT COMMITTEE
RESOLVED BY THE CITY COUNCIL OF THE CITY OF LANSING
Approving a Personal Property Exemption

WHEREAS, pursuant to Public Act 328 of 1998 (1998 PA 328), General Motors LLC has made Application for Exemption of New Personal Property (PPE-01-14) for property located at 920 Townsend Avenue, commonly known as the Lansing Grand River Assembly Stamping Plant, and that is contained within the Lansing Industrial Development Districts IDD-05-77 and IDD-08-80 established by the Lansing City Council on May 23, 1977 and December 22, 1980 respectively, pursuant to Public Act 198 of 1974, as amended; and

WHEREAS, a public hearing was held on April 7, 2014, on the General Motors LLC Application for Exemption of New Personal Property, at which, and with advance written notice, the assessor and all representatives of affected taxing units were afforded an opportunity to appear and be heard on the application and exemption request; and

WHEREAS, the City of Lansing ("the City") is an eligible local assessing district under PA 328 because it contains an eligible distressed area, as acknowledged by the Michigan State Tax Commission in its Bulletin dated May 10, 1999 and as acknowledged by the Michigan State Housing Development Association's most current listing of eligible distressed dates, dated May 6, 2013; and

WHEREAS, Lansing Industrial Development District IDD-05-77 and IDD-08-80. established pursuant to PA 198 of 1974, as amended, are eligible districts under PA 328, as amended, and they are within the jurisdiction of the City of Lansing and, therefore, within an eligible local assessing district; and

WHEREAS, the Application for the Project was filed on March 10, 2014; and

WHEREAS, with respect to section 3(e)(ii)(B) of Public Act 92 of 2014, the Project is expected to have total new personal property of over $25,000,000 within 5 years of the adoption of this resolution approving the Property's exemption; and

WHEREAS General Motors LLC meets the requirements of an eligible business under Public Act 328 by being primarily engaged in manufacturing.

NOW, BE IT RESOLVED that the Lansing City Council hereby approves the application of General Motors LLC for exemption of new personal property (PPE-01-14) pursuant to Public Act 328 of 1998, as amended, for that portion of the Lansing Industrial Districts IDD-05-77 and IDD-08-80, legally described as:

A PARCEL OF LAND LOCATED IN AND BEING PART OF THE NORTHWEST ¼ OF SECTION 21 AND THE NORTHEAST ¼ OF SECTION 20, T.4N., R.2W., CITY OF LANSING, INGHAM COUNTY, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 21, THENCE S89°24'37"E 788.14' ALONG THE NORTH LINE OF SAID SECTION 21; THENCE S0°35'23"W 2107.75' TO THE POINT OF BEGINNING; THENCE S89°35'28"E 99.97'; THENCE S0°25'48"W 267.28'; THENCE S89°37'26"E 149.73'; THENCE S0°22'34"W 201.56'; THENCE N89°44'42"W 56.00'; THENCE N84°09'13"W 107.47'; THENCE N89°05'07"W 414.55'; THENCE N0°20'51"E 35.12'; THENCE N89°28'28"W 634.38'; THENCE N76°57'48"W 197.39'; THENCE N0°26'17"E 302.15'; THENCE S89°33'42"E 1154.64'; THENCE N0°26'20"E 73.95'; TO THE POINT OF BEGINNING. CONTAINING 11.0776 ACRES OF LAND; commonly known as the

PETITION FOR CLEANING OUT, RELOCATING, WIDENING, DEEPENING, STRAIGHTENING, TILING, EXTENDING, ADDING BRANCHES, RELOCATING ALONG A HIGHWAY AND/OR INSTALLING DEVICES TO PURIFY THE FLOW OF THE DRAIN THE MONTGOMERY DRAIN (ALSO KNOWN AS MONTGOMERY DRAIN EXTENSION) PURSUANT TO CHAPTER 20 OF ACT 40 OF THE PUBLIC ACTS OF 1956, AS AMENDED

TO THE INGHAM COUNTY DRAIN COMMISSIONER:

The undersigned public corporation in the State of Michigan, namely the City of Lansing, hereby petitions for the cleaning out, relocating, widening, deepening, straightening, tiling, extending, adding branches, relocating along a highway, and/or installing devices to purify the flow of the drain known and designated as the Montgomery Drain, also known as Montgomery Drain Extension ("Montgomery Drain"), wholly located and established in the City of Lansing, City of East Lansing and Township of Lansing in the County of Ingham, State of Michigan.

The route and course of the Montgomery Drain is described in the Attached Exhibit A.

The cleaning out, relocating, widening, deepening, straightening, tiling, extending, adding branches, relocating along a highway, and/or installing devices to purify the flow of said Drain is necessary for the public health, and is required at this time due to flooding of parcels within the Montgomery Drain Drainage District and due to pollution of the Montgomery Drain resulting in pollution of the waters of the state.

This petition has been authorized by this petitioner's governing body, as evidenced by the attached resolution.

This petition is filed pursuant to the provisions of Chapter 20 of Act No. 40 of the Public Acts of 1956, as amended.

It is understood that the cost of said project is to be wholly assessed against public corporations, including this petitioner. The City of Lansing may levy a special assessment, charge or fee for all or a portion of the cost of this project against benefiting properties under MCL 280.490 and has conducted a hearing on April 7, 2014 as prescribed in MCL 280.489a for this purpose.

A certified copy of the Resolution of the governing body of the City of Lansing authorizing the execution of the Petition is hereby attached.

CITY OF LANSING

May 20, 2014
Date

By: _____
Chris Swope, Clerk

EXHIBIT "A" TO PETITION
MONTGOMERY DRAIN ROUTE & COURSE

The Montgomery Drain, also known as Montgomery Drain Extension ("Montgomery Drain"), is wholly located and established in the City of Lansing, City of East Lansing and Township of Lansing in the County of Ingham, State of Michigan, and is described as follows:

Drain located in Sections 11 and 14, City of Lansing, Ingham County, Michigan.

Beginning at station 13+32, on the right of way of Michigan Avenue, said point being 32.0 feet South of the North line of said Michigan Avenue; thence on said right of way as follows: North 60°56' West, 51.0 feet; thence West 287.0 feet; thence North 45°00' West, 4.2 feet to said right of way line, station 16+74.2 feet. Total length of drain on said right of way, 342.2 feet.

Thence over and across easement as follows:
Beginning at station 16+74.2, thence North 45°00' West, 38.2 feet; thence North 987.0 feet; thence North 43°00' West, 428.8 feet; thence North 1°50' East, 671.2 feet; thence North 36°10' West, 195.0 feet; thence North 3°40' West, 255.0 feet; thence North 18°31' East, 130.0 feet to station 43+80, the North line of said land. Total length of drain on said land is 2705.8 feet.

Thence over and across Michigan State Highway Department rights of way for M-78 and U.S. 16 as follows:
Beginning at station 43+80, the South line of M-78, thence North 18°31'East, 240.0 feet to station 46+20, the upper terminus.
Total length of drain on said land is 240.0 feet.

BRANCH #1

Branch #1, a branch of the Montgomery Drain Extension, located in Section 14, T4N, R2W, Ingham County, Michigan, the centerline described as follows: Beginning at station 31+29 on the Main Drain, thence North 84°51' West, 676.0 feet to station 6+76, the upper terminus.

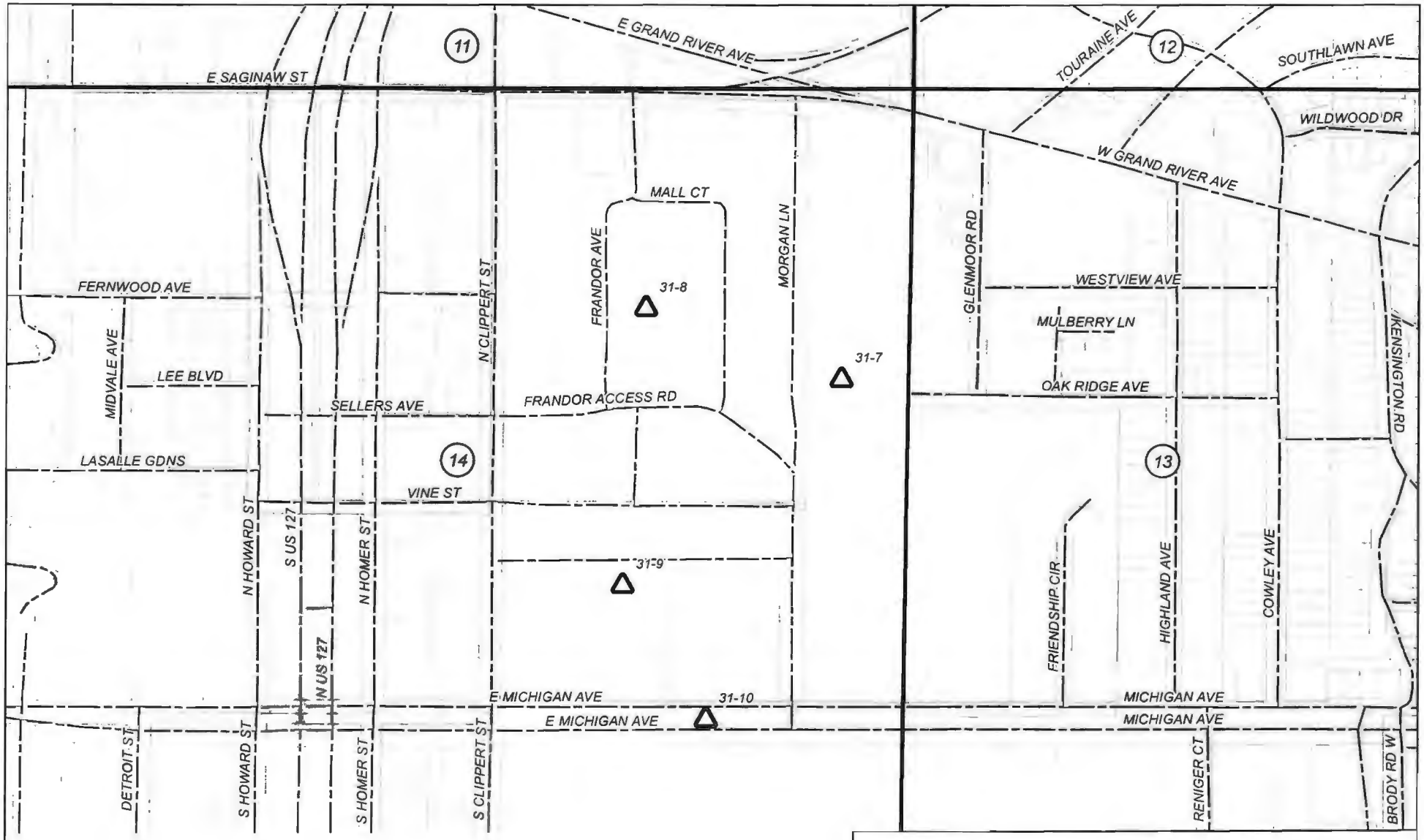
BRANCH #2

Branch #2, a branch of the Montgomery Drain Extension, located in Section 14, T4N, R2W, City of Lansing, Ingham County, Michigan, the centerline described

as follows: Beginning at station 38+00 on the Main Drain, thence North 81°19' West, 478 feet; thence South 73°45' West, 228 feet to station 7+06, the upper terminus.

BRANCH #3

Branch #3, a branch of the Montgomery Drain Extension, located in Section 14, T4N, R2W, City of Lansing, Ingham County, Michigan, described as follows: Beginning at station 4+78 of Branch #2, thence North 2°12' West, 234.0 feet; thence North 65°55' East, 245.0 feet to station 4+79, the upper terminus.



LEGEND

- IMPACTS
- INGHAM COUNTY SECTIONS
- PARCELS
- ROADS

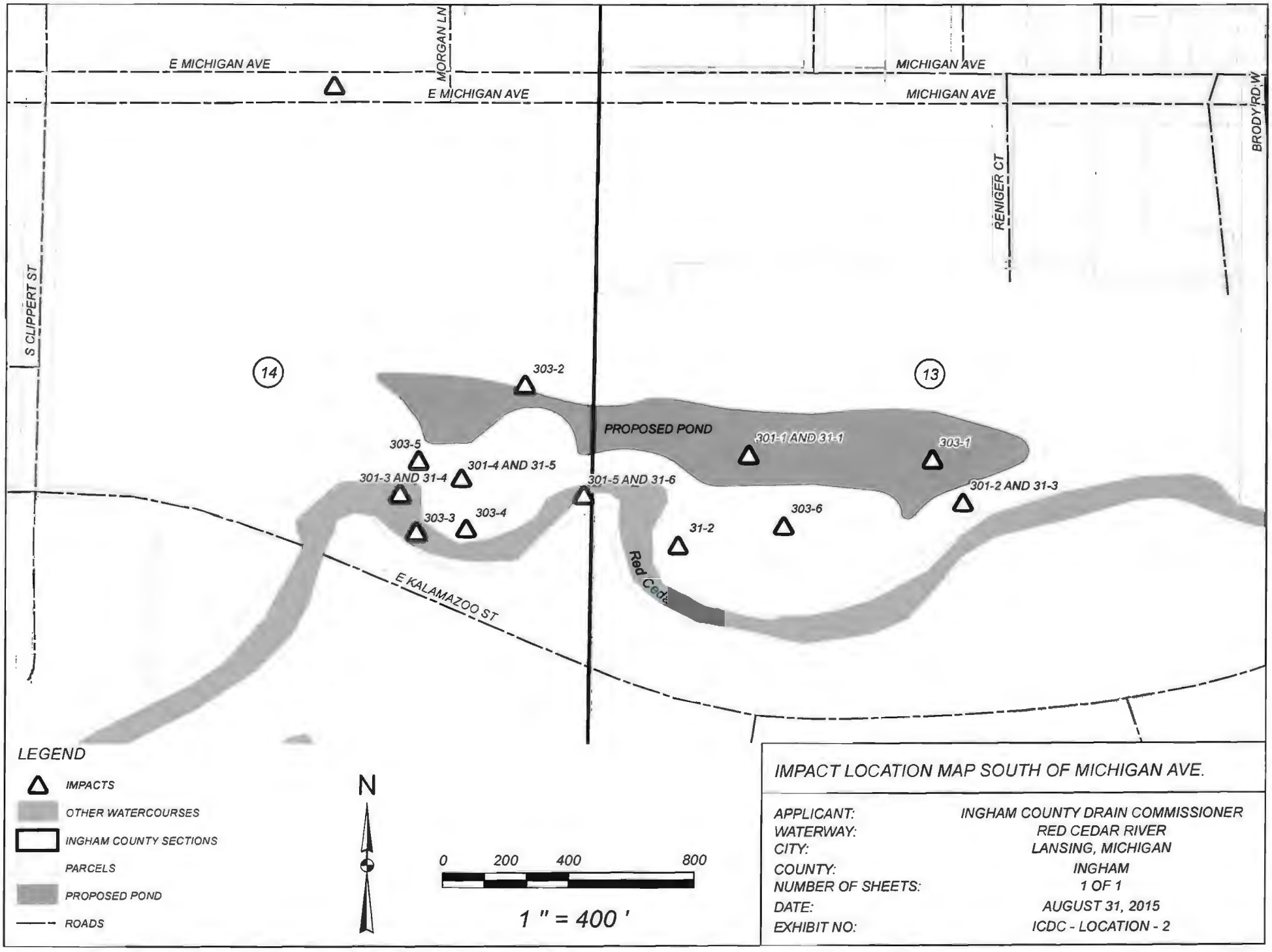
N

0 300 600 1,200

1 " = 600 '

IMPACT LOCATION MAP NORTH OF MICHIGAN AVE.

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC - LOCATION - 1



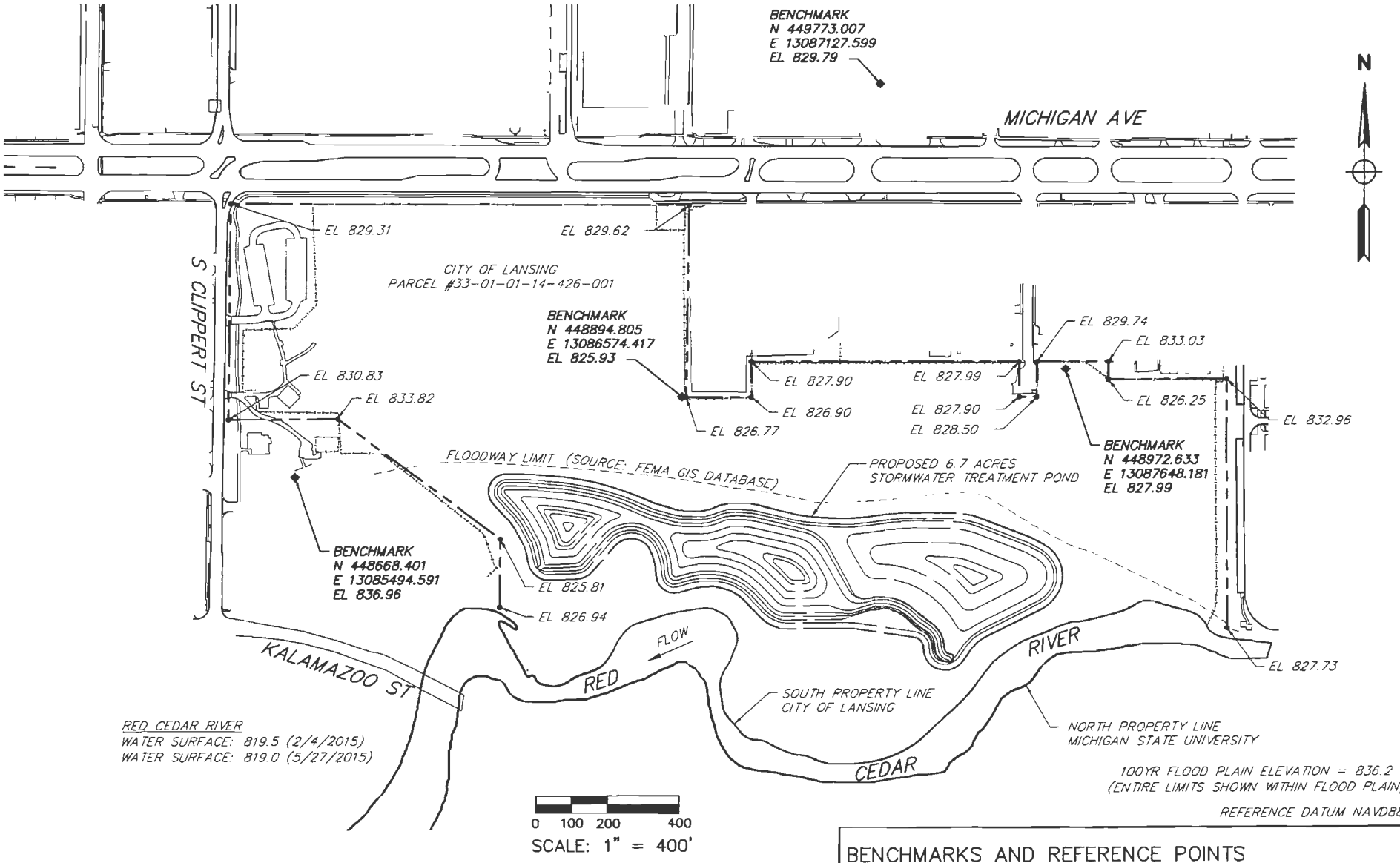
IMPACT LOCATION MAP SOUTH OF MICHIGAN AVE.

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC - LOCATION - 2

Montgomery Drain
MDEQ Impact Summary Table

Impact ID/Exhibit No.	Description of impact on resource	Sample Drawing
ICDC-GP-REFERENCE POINTS-1	Benchmarks and Reference Points	
ICDC-GP-Wetland Location Map-1	Wetland Location Map	
ICDC -GP-303- 1	Wetland Mitigation	9
ICDC - GP-303- 2	Wetland Creation (not-mitigation)	9
ICDC -GP-303- 3	Wetland Impact - Regulated Wetland "A"	9
ICDC - GP-303- 4	Wetland Impact - Regulated Wetland "B"	9
ICDC -GP-303- 5	Wetland Impact - Regulated Wetland "C"	9
ICDC - GP-303- 6	Wetland Impact - Regulated Wetland "F" (Wooded)	9
ICDC - GP-301- 1	Water Quality Treatment Pond	4, 14-C
ICDC - GP-301- 2	Work below the OHWM at East outlet control structure outfall	22
ICDC - GP-301- 3	Work below the OHWM at West outlet control structure outfall	22
ICDC - GP-301- 4	Work below the OHWM at Pond Overflow Spillway	22
ICDC - GP-301- 5	Work below the OHWM to improve or remove existing outfalls	22
ICDC - GP-31- 1	Excavation in Floodway and temporary stockpiling for Stormwater Treatment Pond	5
ICDC - GP-31- 2	Non-Motorized Trail / Boardwalk in Floodway around Stormwater Treatment Pond	5
ICDC - GP-31- 3	Rip-Rap at East outlet control structure outfall	5
ICDC - GP-31- 4	Rip-Rap at West outlet control structure outfall	5
ICDC - GP-31- 5	Rip-Rap at Pond Overflow Spillway	5
ICDC - GP-31- 6	Rip-Rap / Heasdworks at existing outfalls	5
ICDC - GP - 31 -7	System at Ranney Park	5
ICDC - GP - 31 -8	Rain Gardens - Frandor Shopping Center	5
ICDC - GP - 31 -9	Rain Gardens - Sears	5
ICDC - GP - 31 -10	Rain Gardens - Michigan Avenue	5

Numbering KEY	
ICDC	Ingham County Drain Project
GP	General Permit
301/303/31	NREPA Part #
#	Impact ID #

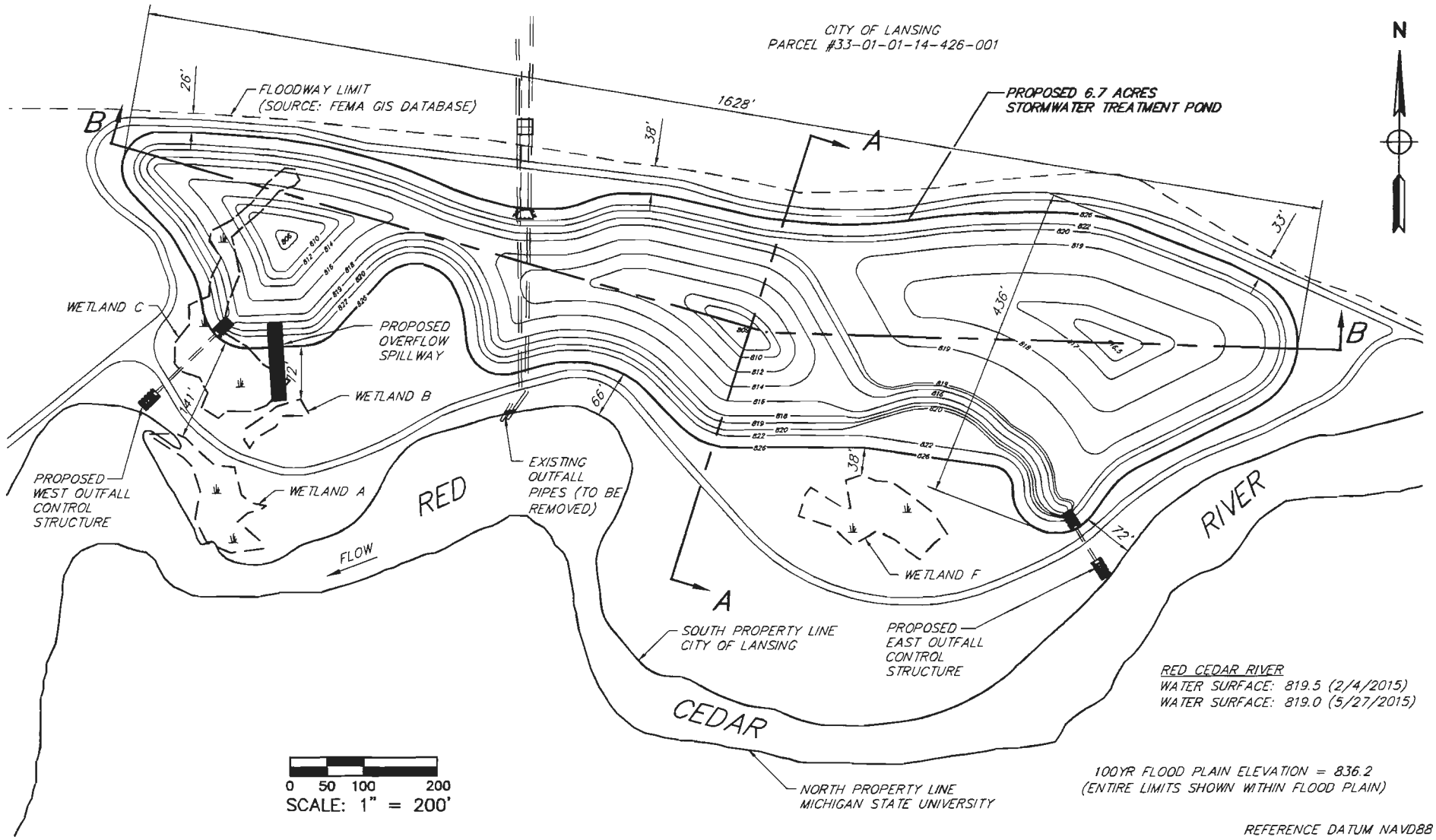


BENCHMARKS AND REFERENCE POINTS

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-REFERENCE POINTS-1

NOTE:

SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS



NOTE:

TEMPORARY STOCKPILING WILL OCCUR DURING CONSTRUCTION AND WILL BE ULTIMATELY HAULED AWAY TO UPLAND NON FLOODPLAIN DEPOSIT SITE

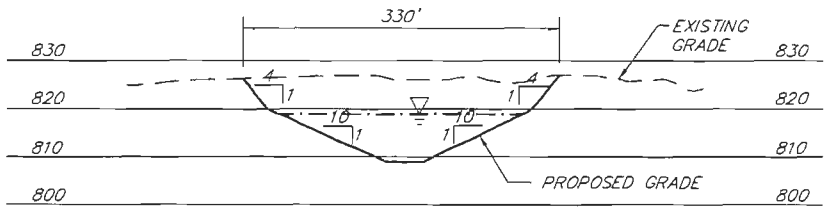
SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

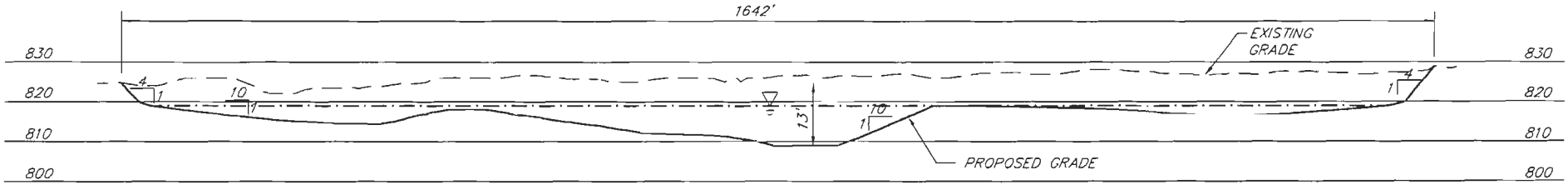
SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

PART 301 – INLAND LAKES AND STREAMS
PROPOSED STORMWATER TREATMENT POND

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 2
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-301-1



SECTION A–A



SECTION B–B

0 50 100 200
1"=200'
HORIZONTAL SCALE

0 10 20 40
1"=40'
VERTICAL SCALE

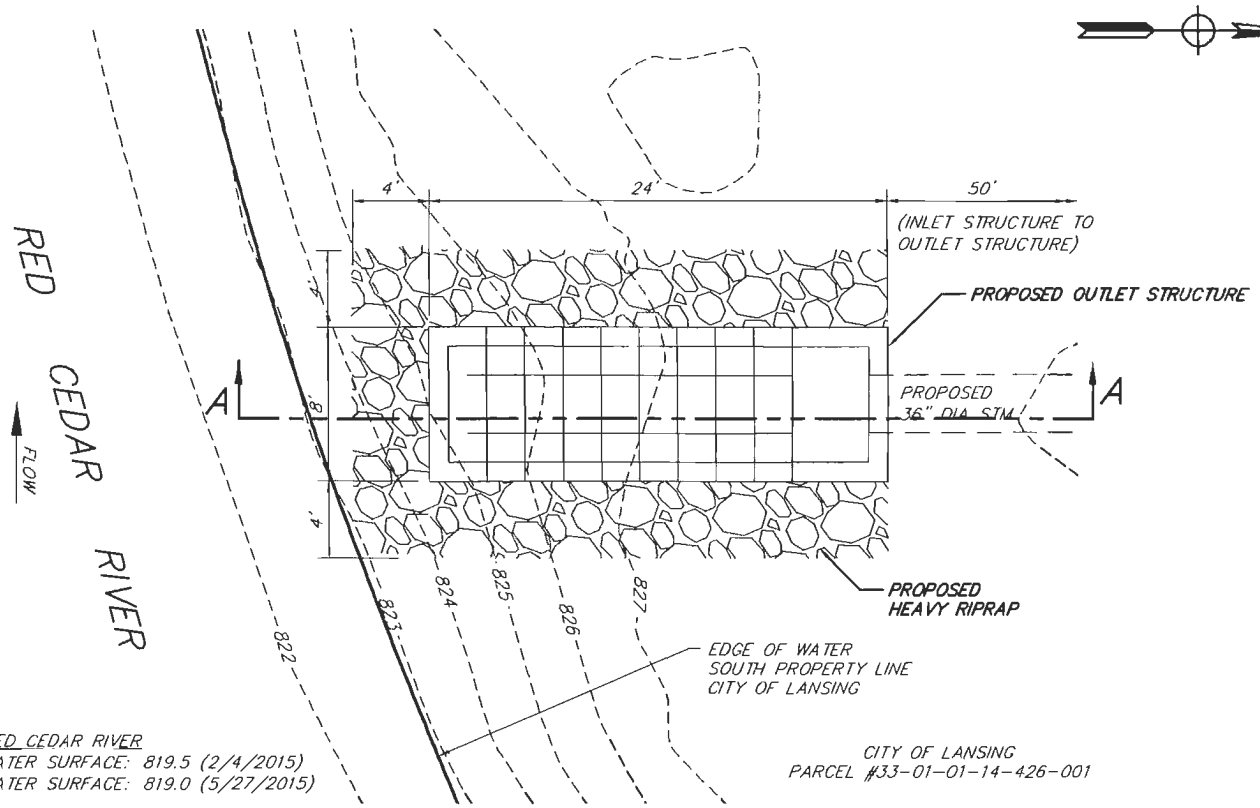
100YR FLOOD PLAIN ELEVATION = 836.2
(ENTIRE LIMITS SHOWN WITHIN FLOOD PLAIN)

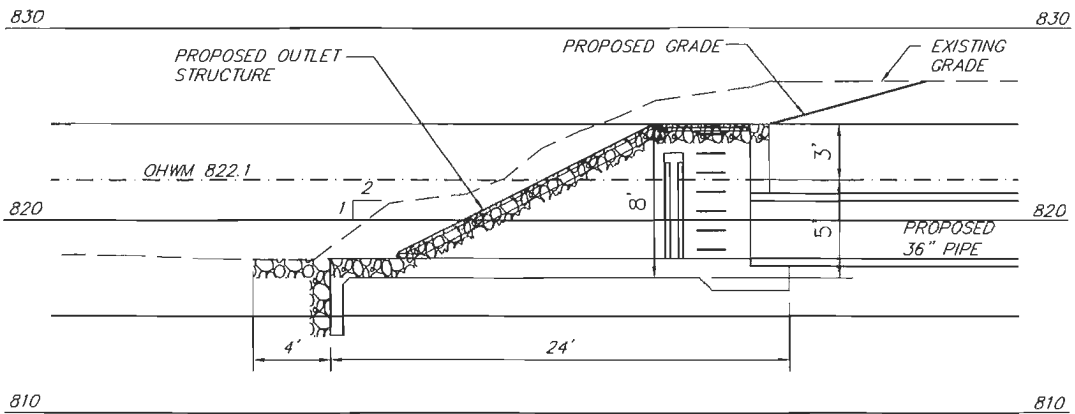
REFERENCE DATUM NAVD88

STORMWATER TREATMENT POND	
SURFACE AREA	291,852 SF (6.7 ACRE)
TOP OF STORAGE ELEVATION	819.00
BOTTOM OF STORAGE ELEVATION	806.00
MAXIMUM LENGTH	1628 FT
MAXIMUM WIDTH	436 FT
MAXIMUM DEPTH	13 FT
MAXIMUM SLOPE	4:1
POND EXCAVATION	
AVERAGE LENGTH	1434 FT
AVERAGE WIDTH	300 FT
AVERAGE DEPTH	8 FT
1434 X 300 X 8	3,441,600 CU FT (127,467 CU YD)
TOTAL FILL	(0 CU YD)

PART 301 – INLAND LAKES AND STREAMS
PROPOSED STORMWATER TREATMENT POND

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	2 OF 2
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC–GP–301–1





SECTION A–A

OUTLET STRUCTURE EXCAVATION
TOTAL CUT (28 FT X 8 FT X 7 FT / 2 / 27) = 29 CU YD
TOTAL FILL = 20 CU YD
CUT BELOW OHWM (28 FT X 8 FT X 6 FT / 2 / 27) = 25 CU YD
FILL BELOW OHWM = 15 CU YD

OUTLET STRUCTURE RIPRAP
ABOVE OHWM (26 FT X 4 FT X 1 FT / 27) = 4 CU YD
BELOW OHWM (42 FT X 4 FT X 1 FT / 27) = 6 CU YD

SCALE: 1" = 10'

100YR FLOOD PLAIN ELEVATION = 836.2
(ENTIRE LIMITS SHOWN WITHIN FLOOD PLAIN)

REFERENCE DATUM NAVD88

NOTE:

SEE EXHIBIT ICDC-GP-301-1 FOR OUTFALL STRUCTURE LOCATION

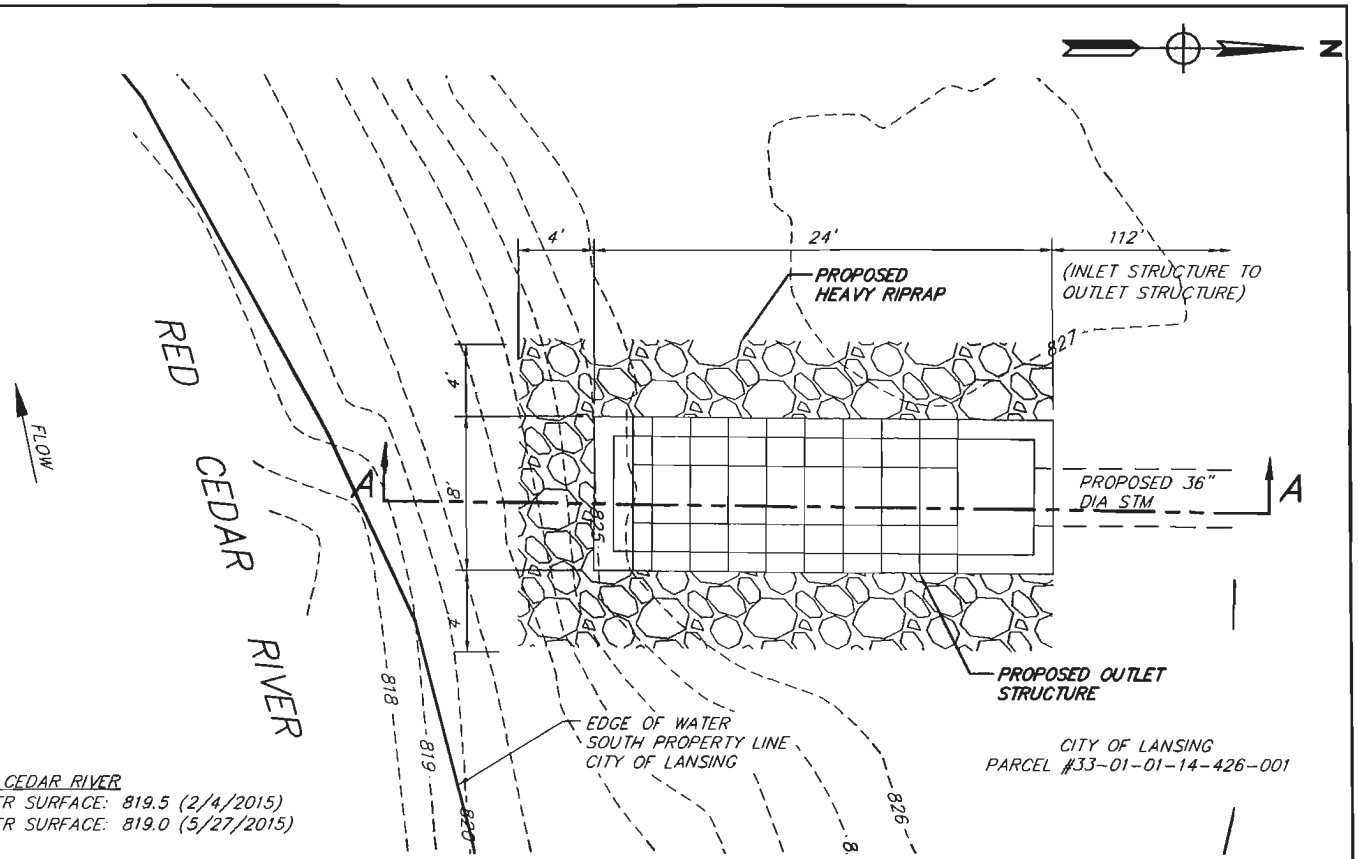
SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

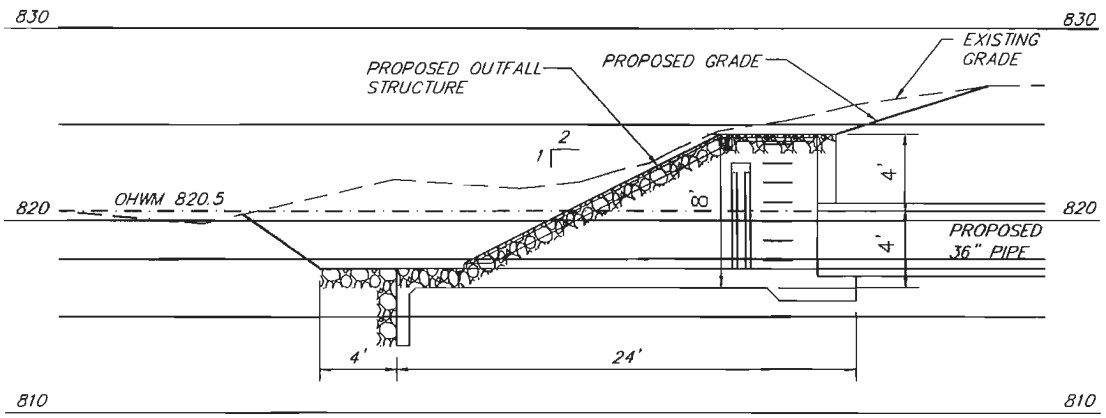
SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

PART 301 – INLAND LAKES AND STREAMS
PROPOSED EAST OUTFALL STRUCTURE

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC–GP–301–2





0 2.5 5 10
SCALE: 1" = 10'

SECTION A–A

OUTLET STRUCTURE EXCAVATION
TOTAL CUT (28 FT X 8 FT X 7 FT / 2 / 27) = 29 CU YD
TOTAL FILL = 20 CU YD
CUT BELOW OHWM (28 FT X 8 FT X 6 FT / 2 / 27) = 25 CU YD
FILL BELOW OHWM = 15 CU YD

OUTLET STRUCTURE RIPRAP
ABOVE OHWM (26 FT X 4 FT X 1 FT / 27) = 4 CU YD
BELOW OHWM (42 FT X 4 FT X 1 FT / 27) = 6 CU YD

100YR FLOOD PLAIN ELEVATION = 836.2
(ENTIRE LIMITS SHOWN WITHIN FLOOD PLAIN)

REFERENCE DATUM NAVD88

NOTE:

SEE EXHIBIT ICDC-GP-301-1 FOR OUTFALL STRUCTURE LOCATION

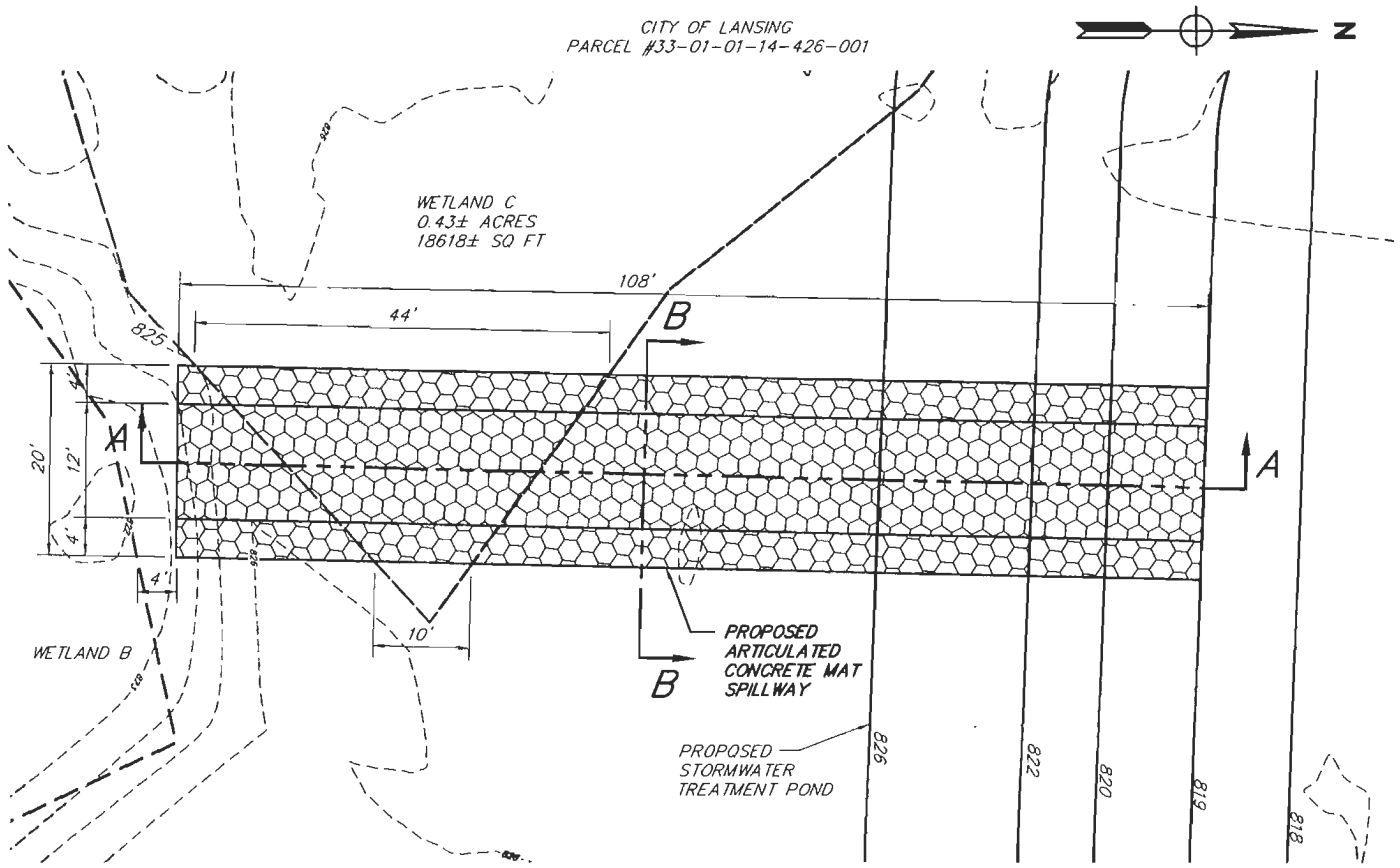
SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

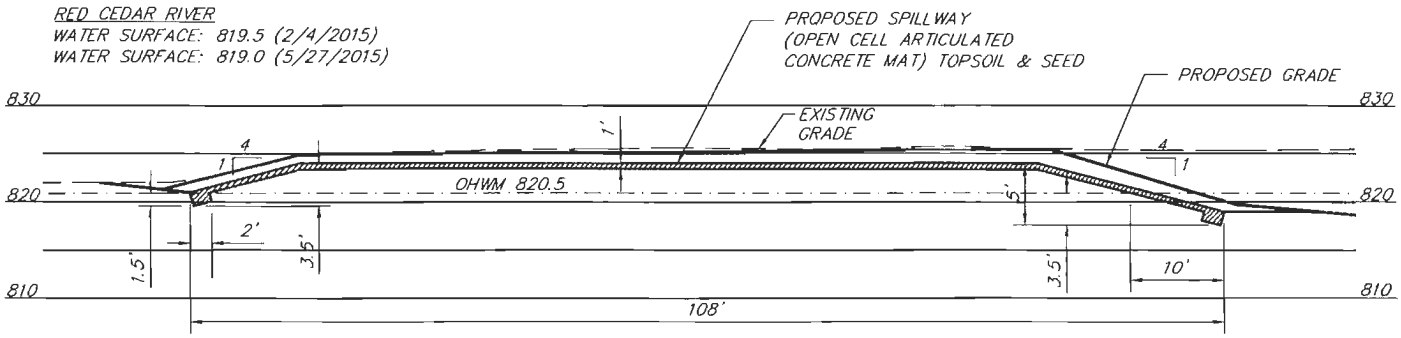
SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

PART 301 – INLAND LAKES AND STREAMS
PROPOSED WEST OUTFALL STRUCTURE

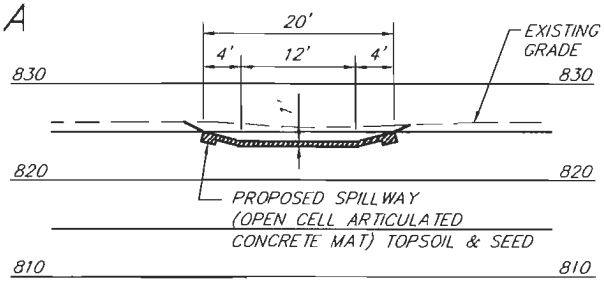
APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-301-3





SECTION A–A

0 5 10 20
SCALE: 1" = 20'



SECTION B–B

OVERFLOW SPILLWAY EXCAVATION
TOTAL CUT (108 FT X 20 FT X 2 FT / 27) = 160 CU YD
TOTAL FILL = 80 CU YD
CUT BELOW OHWM (12 FT X 20 FT X 2 FT / 27) = 18 CU YD
FILL BELOW OHWM = 18 CU YD

OVERFLOW SPILLWAY RIPRAP (CONCRETE MAT)
ABOVE OHWM (96 FT X 20 FT X 1 FT / 27) = 71 CU YD
BELOW OHWM (12 FT X 20 FT X 1 FT / 27) = 9 CU YD

NOTE:

SEE EXHIBIT ICDC-GP-301-1 FOR OVERFLOW SPILLWAY STRUCTURE LOCATION

SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

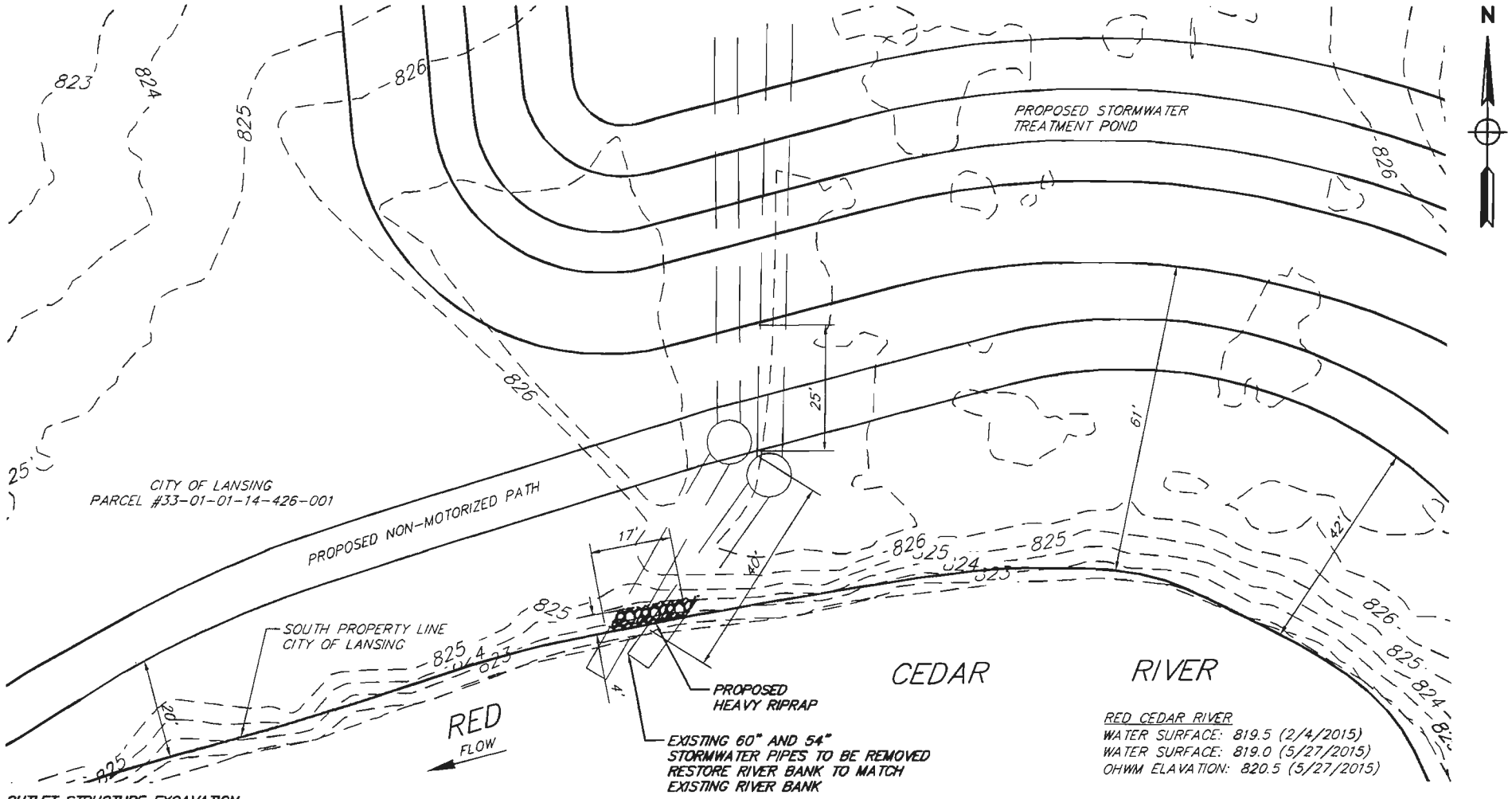
SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

100YR FLOOD PLAIN ELEVATION = 836.2
(ENTIRE LIMITS SHOWN WITHIN FLOOD PLAIN)

REFERENCE DATUM NAVD88

PART 301 – INLAND LAKES AND STREAMS
PROPOSED OVERFLOW SPILLWAY

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC–GP–301–4



0 10 20 40

SCALE: 1" = 40'

100YR FLOOD PLAIN ELEVATION = 836.2
(ENTIRE LIMITS SHOWN WITHIN FLOOD PLAIN)

REFERENCE DATUM NAVD88

OUTLET STRUCTURE EXCAVATION
TOTAL CUT (17 FT X 8 FT X 4 FT / 27) = 20 CU YD
TOTAL FILL = 20 CU YD
CUT BELOW OHWM (17 FT X 4 FT X 4 FT / 27) = 10 CU YD
FILL BELOW OHWM = 10 CU YD

OUTLET STRUCTURE RIPRAP
ABOVE OHWM (17 FT X 4 FT X 4 FT / 27) = 20 CU YD
BELOW OHWM (17 FT X 4 FT X 4 FT / 27) = 20 CU YD

NOTE:

SEE EXHIBIT ICDC-GP-301-1 FOR OUTFALL STRUCTURE LOCATION

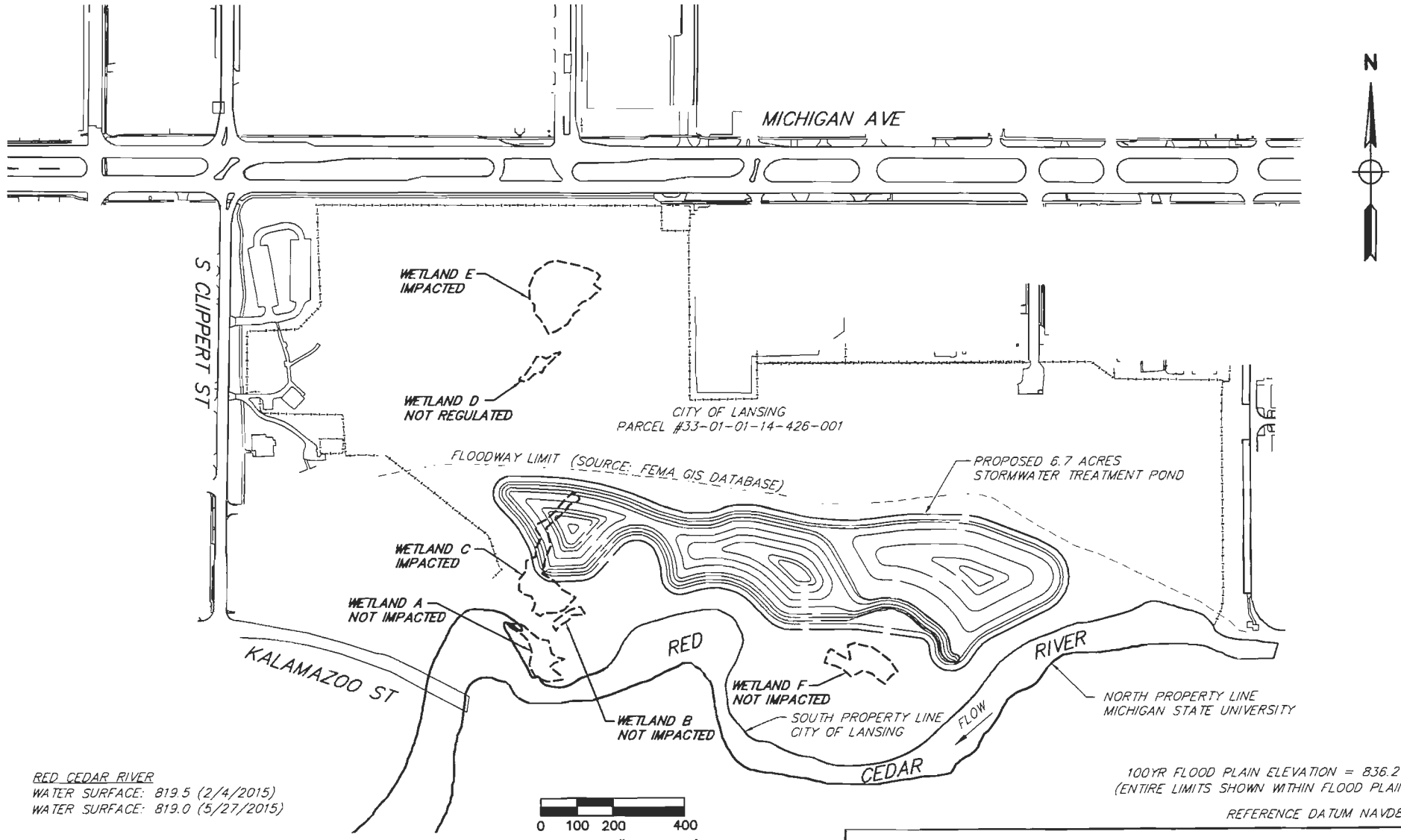
SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

PART 301 – INLAND LAKES AND STREAMS
REMOVE EXISTING STORMWATER OUTFALL STRUCTURE

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-301-5



RED CEDAR RIVER
WATER SURFACE: 819.5 (2/4/2015)
WATER SURFACE: 819.0 (5/27/2015)

100YR FLOOD PLAIN ELEVATION = 836.2
(ENTIRE LIMITS SHOWN WITHIN FLOOD PLAIN)

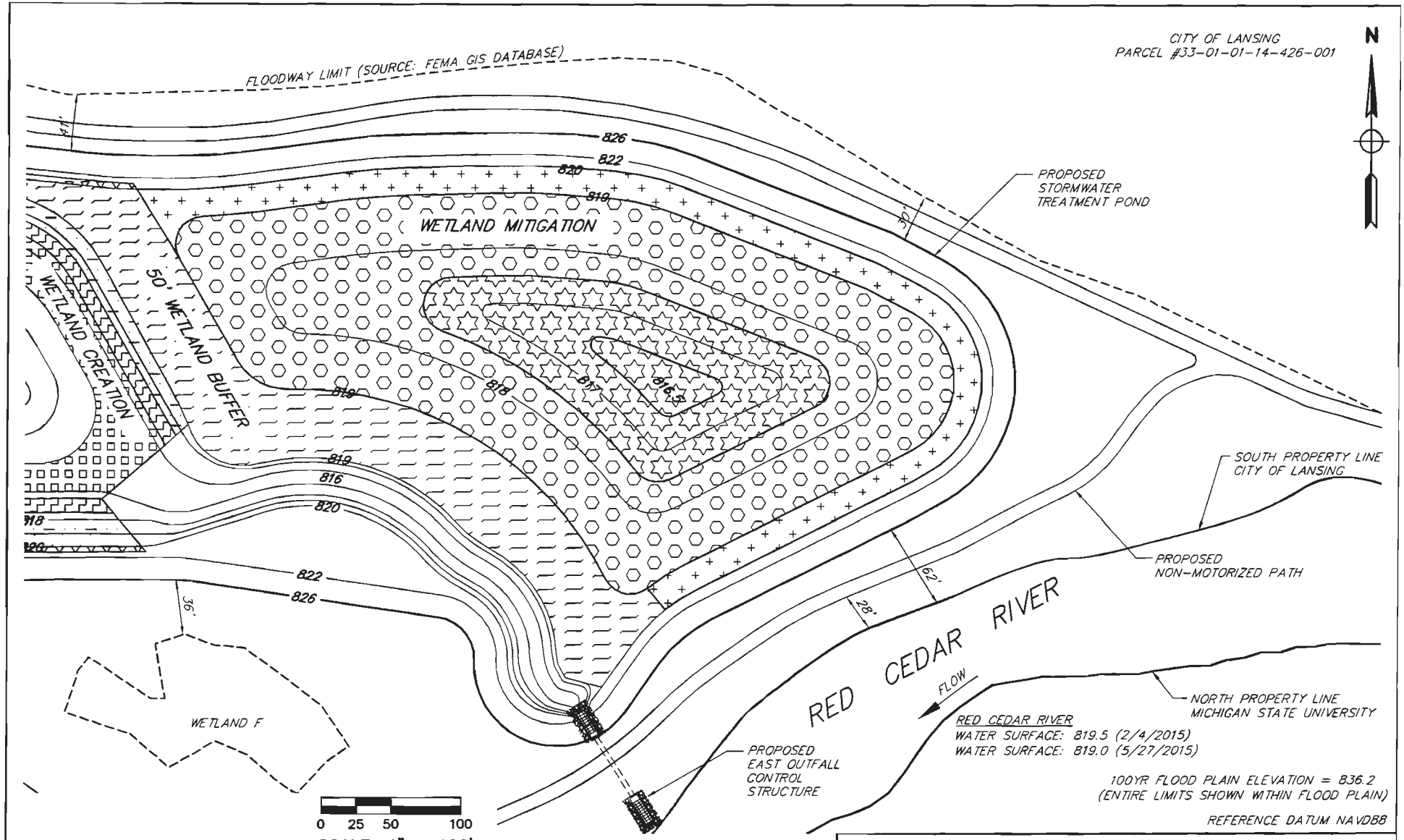
REFERENCE DATUM NAVD88

NOTE:

SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

WETLAND LOCATION MAP

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP--WETLAND LOCATION MAP-1



NOTE:

SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

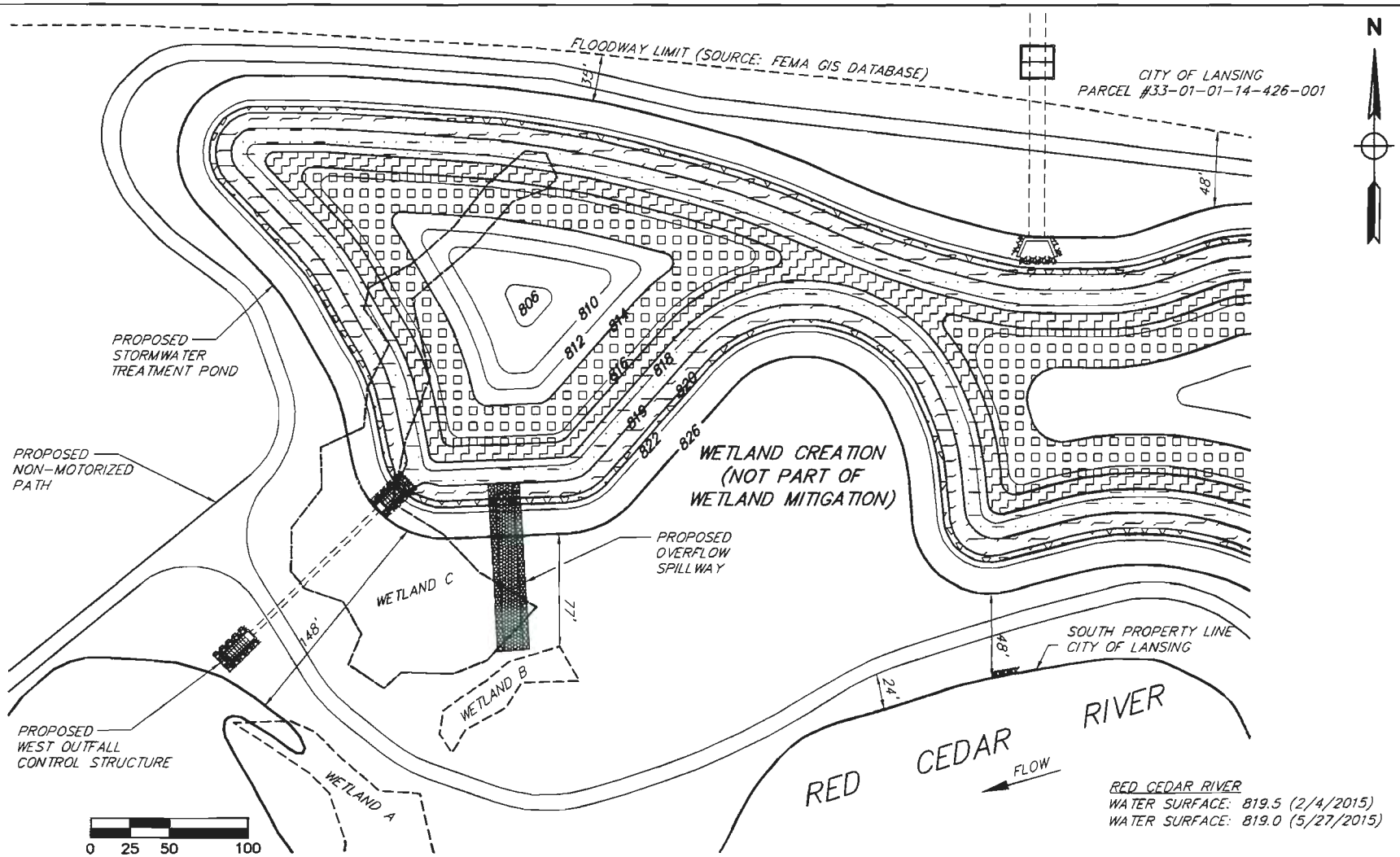
SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPOERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

WETLAND MITIGATION LEGEND

- SCRUB SHRUB
  EL 820 TO 819 (0.43 ACRE)
- EMERGENT/WET MEADOW
  EL 819 TO 817.5 (1.63 ACRE)
- DEEP EMERGENT
  EL 817.5 TO 816.5 (0.54 ACRE)

PART 303 – WETLANDS PROTECTION
PROPOSED WETLAND MIGATION

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-303-1



RED CEDAR RIVER
WATER SURFACE: 819.5 (2/4/2015)
WATER SURFACE: 819.0 (5/27/2015)

100YR FLOOD PLAIN ELEVATION = 836.2
(ENTIRE LIMITS SHOWN WITHIN FLOOD PLAIN)

REFERENCE DATUM NAVD88

NOTE:

WETLAND CREATION NOT PART OF WETLAND MITIGATION

SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

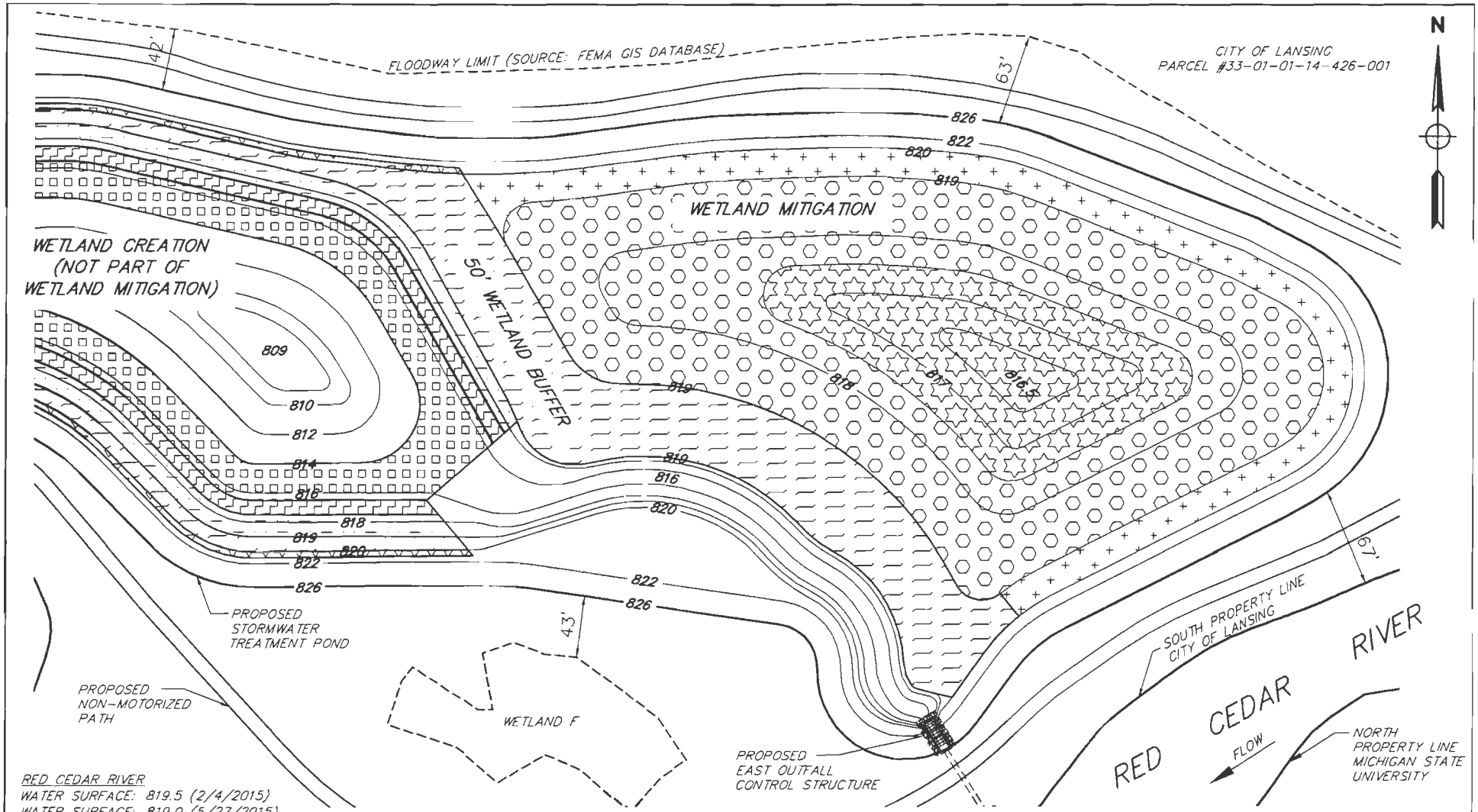
SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

WETLAND CREATION LEGEND

- FORESTED
  EL 821 TO 820 (0.21 ACRE)
- SCRUB SHRUB
  EL 820 TO 819 (1.18 ACRE)
- EMERGENT/WET MEADOW
  EL 819 TO 817.5 (0.8 ACRE)
- DEEP EMERGENT
  EL 817.5 TO 816.5 (0.51 ACRE)
- SUBEMERGENT
  EL 816.5 TO 814 (1.06 ACRE)

PART 303 – WETLAND PROTECTION
PROPOSED WETLAND CREATION

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 2
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-303-2



WETLAND CREATION LEGEND

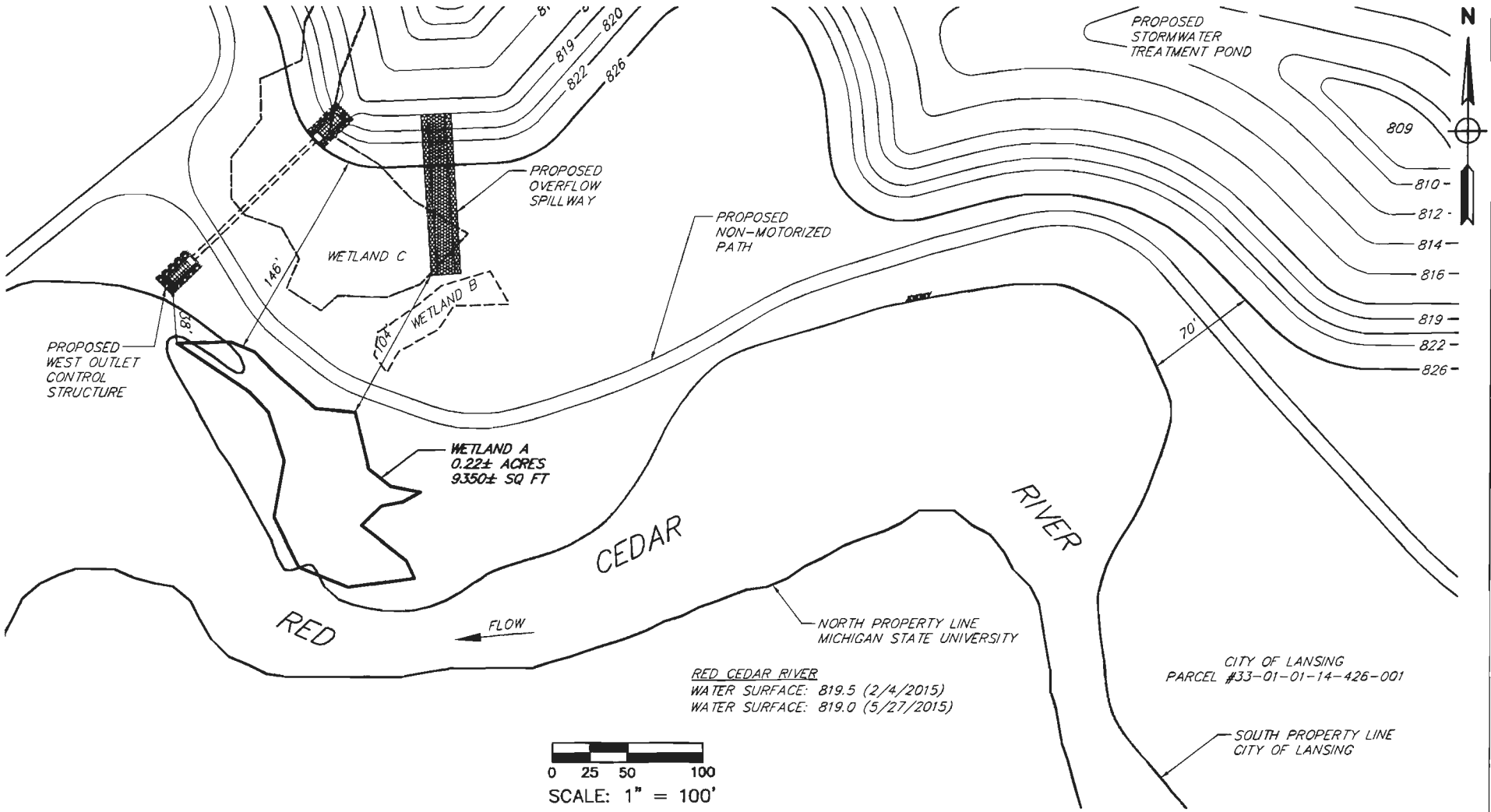
- FORESTED
  EL 821 TO 820 (0.21 ACRE)
- SCRUB SHRUB
  EL 820 TO 819 (1.18 ACRE)
- EMERGENT/WET MEADOW
  EL 819 TO 817.5 (0.8 ACRE)
- DEEP EMERGENT
  EL 817.5 TO 816.5 (0.51 ACRE)
- SUBEMERGENT
  EL 816.5 TO 814 (1.06 ACRE)

NOTE:

WETLAND CREATION NOT PART OF WETLAND MITIGATION

PART 303 – WETLAND PROTECTION
PROPOSED WETLAND CREATION

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	2 OF 2
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-303-2



WETLAND IMPACT – QUANTITIES	
AREA	NONE
VOLUME	NONE

NOTE:

SEE EXHIBIT ICDC-GP-WETLAND LOCATION MAP-1 FOR WETLAND A LOCATION

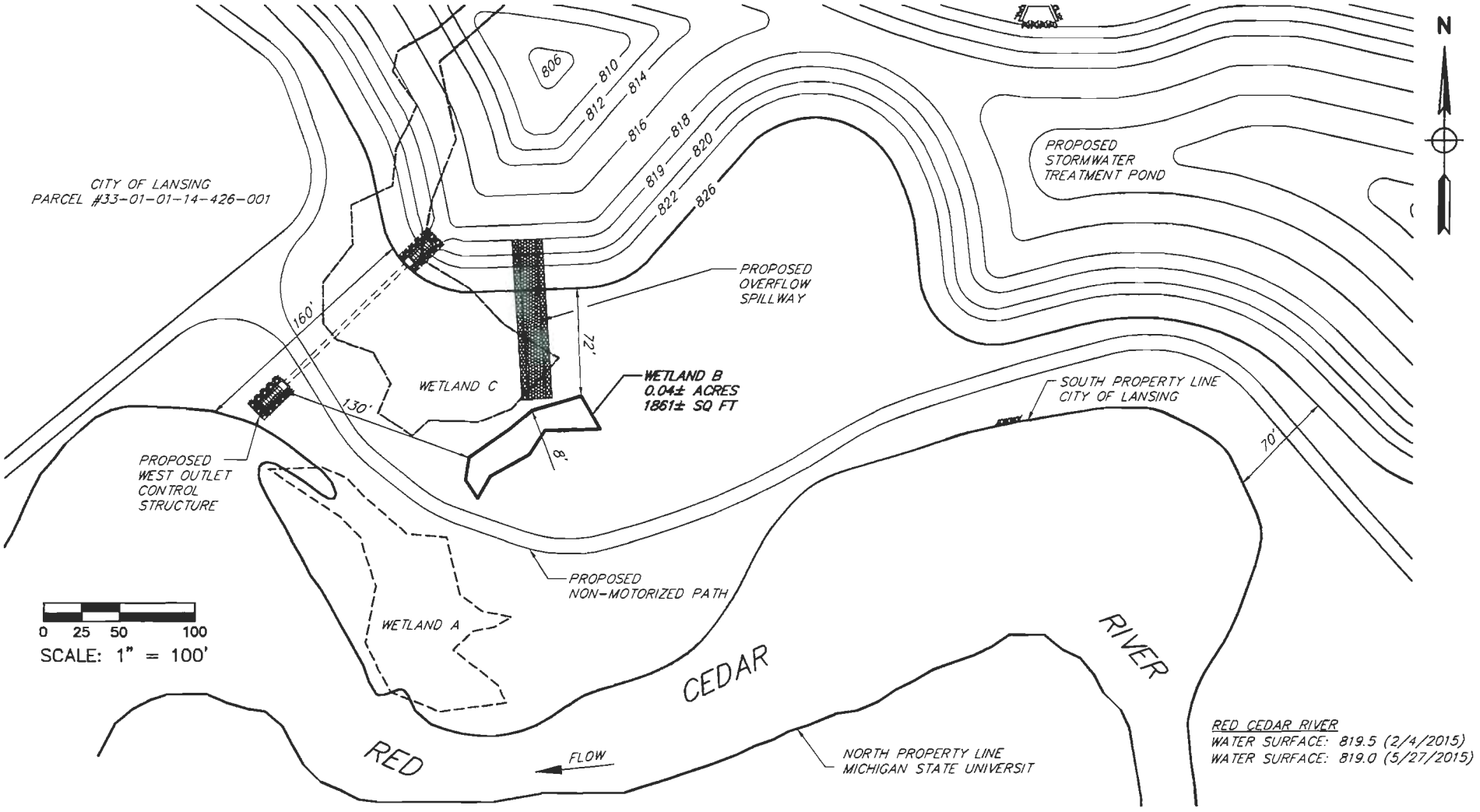
SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

PART 303 – WETLAND PROTECTION
WETLAND IMPACTS – REGULATED WETLAND A

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-303-3



WETLAND IMPACT – QUANTITIES	
AREA	NONE
VOLUME	NONE

NOTE:

SEE EXHIBIT ICDC-GP-WETLAND LOCATION MAP-1 FOR WETLAND B LOCATION

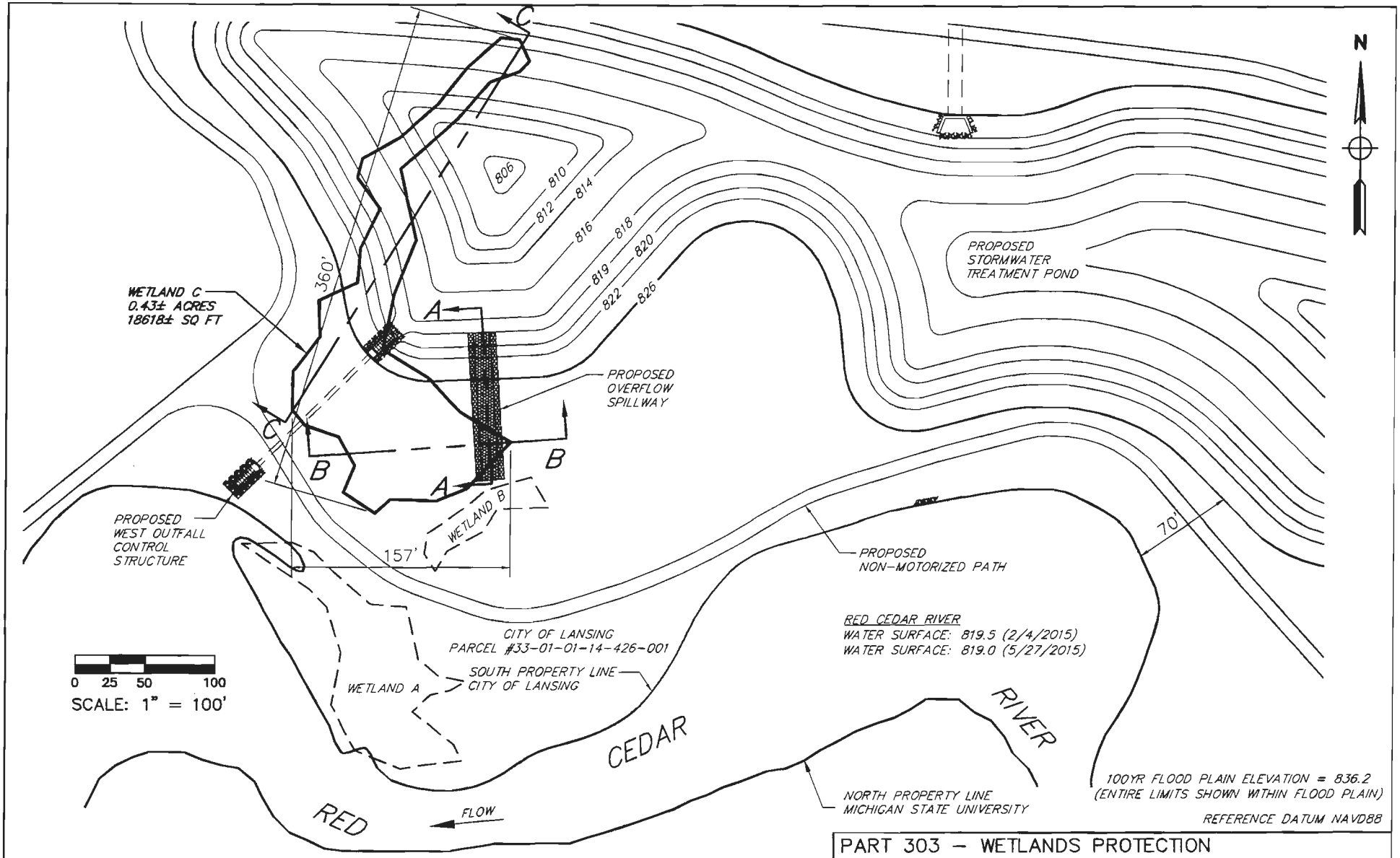
SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

PART 303 – WETLANDS PROTECTION
WETLAND IMPACTS – REGULATED WETLAND B

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-303-4



NOTE:

SEE EXHIBIT ICDC-GP-WETLAND LOCATION MAP-1 FOR WETLAND C LOCATION

SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

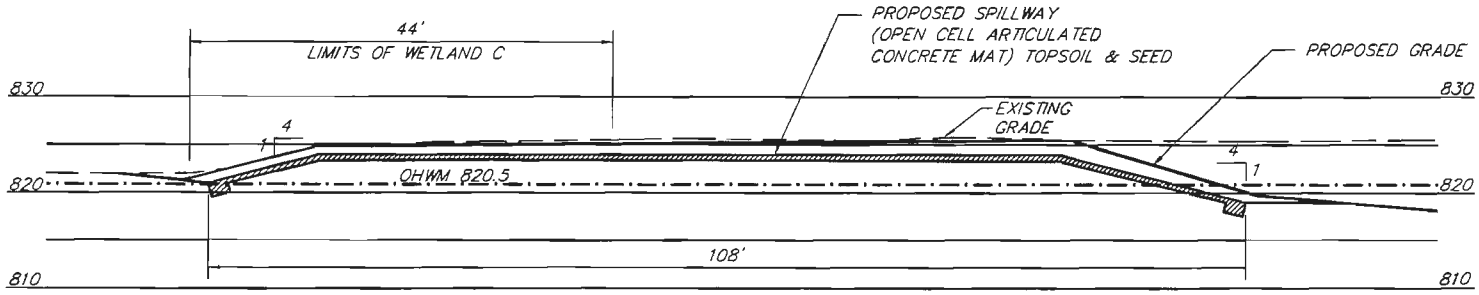
SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

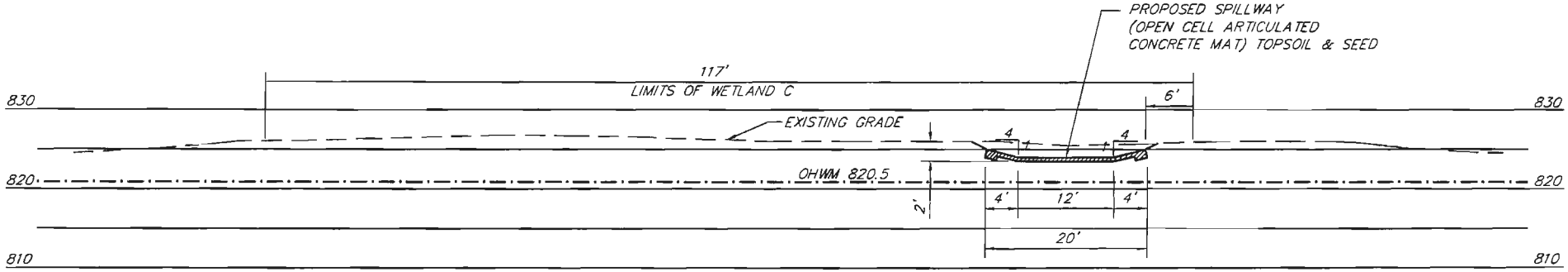
WETLAND IMPACT - QUANTITIES	
AREA	0.43 ACRES
VOLUME	CUT 1,289 CU YD
VOLUME	FILL 365 CU YD

PART 303 - WETLANDS PROTECTION
WETLAND IMPACTS - REGULATED WETLAND C

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 2
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-303-5

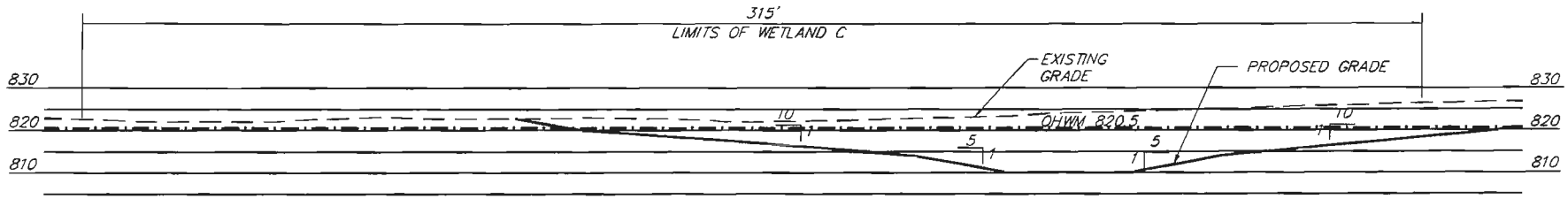


SECTION A–A



SECTION B–B

0 5 10 20
SCALE: 1" = 20'

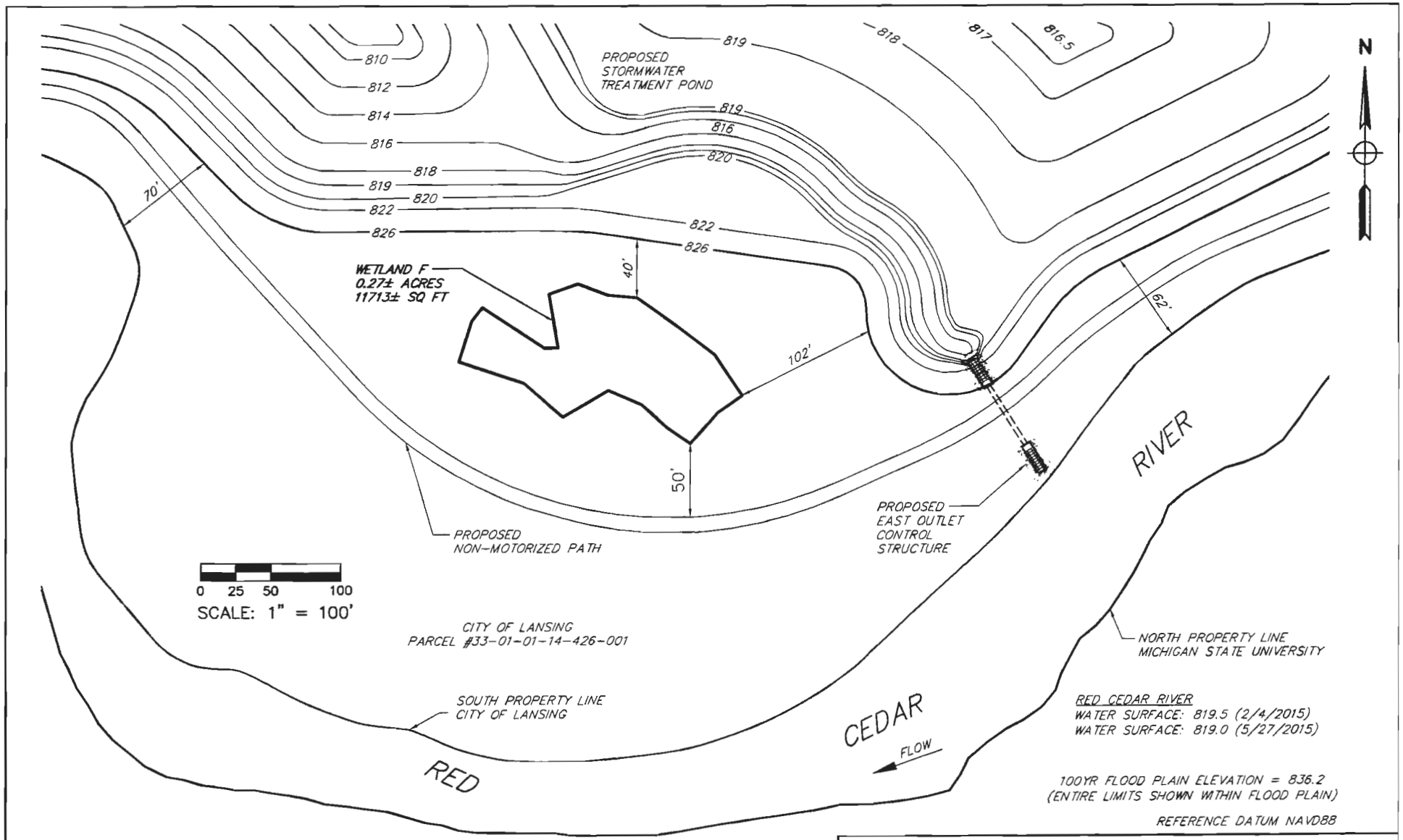


SECTION C–C

0 10 20 40
SCALE: 1" = 40'

PART 303 – WETLANDS PROTECTION
WETLAND IMPACTS – REGULATED WETLAND C

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	2 OF 2
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC–GP–303–5



WETLAND IMPACT – QUANTITIES	
AREA	NONE
VOLUME	NONE

NOTE:

SEE EXHIBIT ICDC-GP-WETLAND LOCATION MAP-1 FOR WETLAND F LOCATION

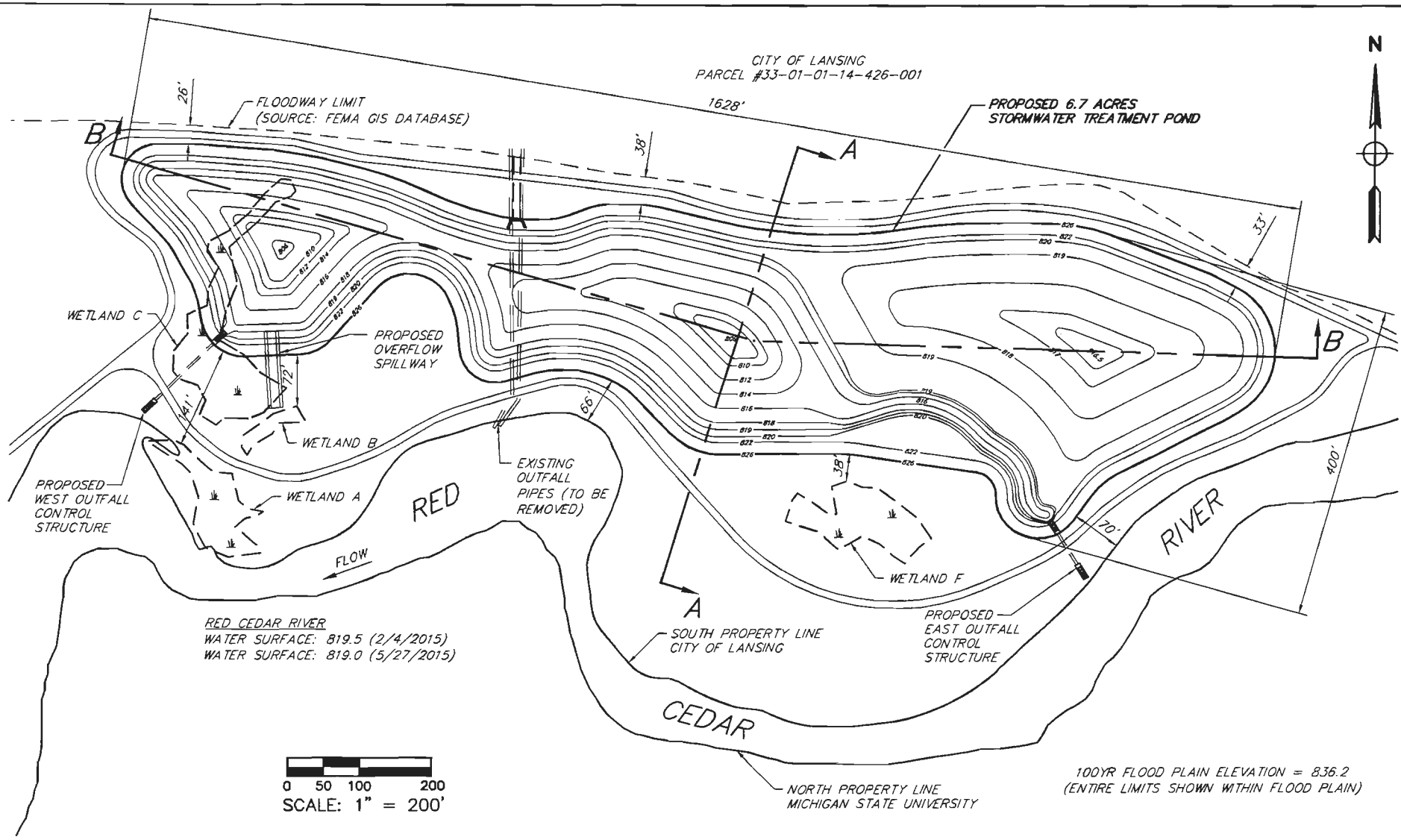
SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

PART 303 – WETLANDS PROTECTION
WETLAND IMPACTS – REGULATED WETLAND F

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-303-6



REFERENCE DATUM NAVD88

NOTE:

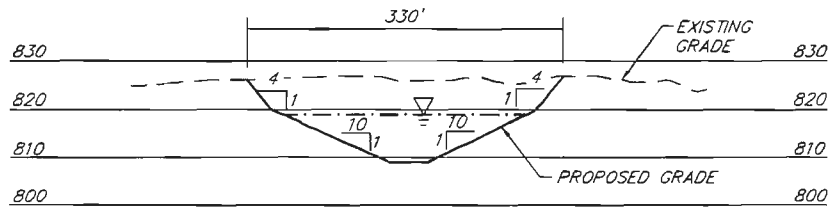
TEMPORARY STOCKPILING WILL OCCUR DURING CONSTRUCTION AND WILL BE ULTIMATELY HAULED AWAY TO UPLAND, NON-FLOODPLAIN DEPOSIT SITE

SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

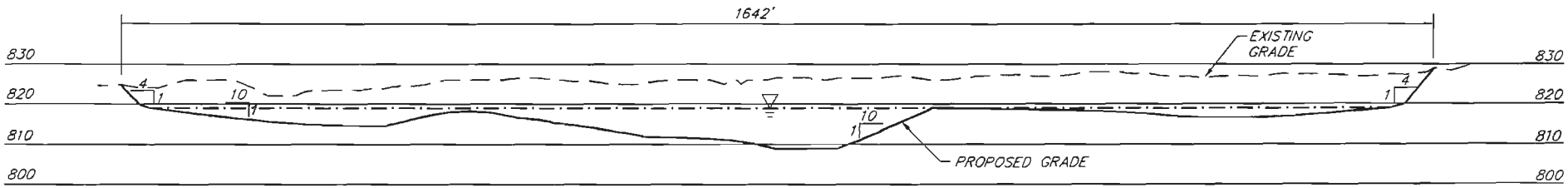
SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

PART 31 – WATER RESOURCES PROTECTION PROPOSED STORMWATER TREATMENT POND	
APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 2
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-1



SECTION A–A



SECTION B–B

0 50 100 200
1"=200'
HORIZONTAL SCALE

0 10 20 40
1"=40'
VERTICAL SCALE

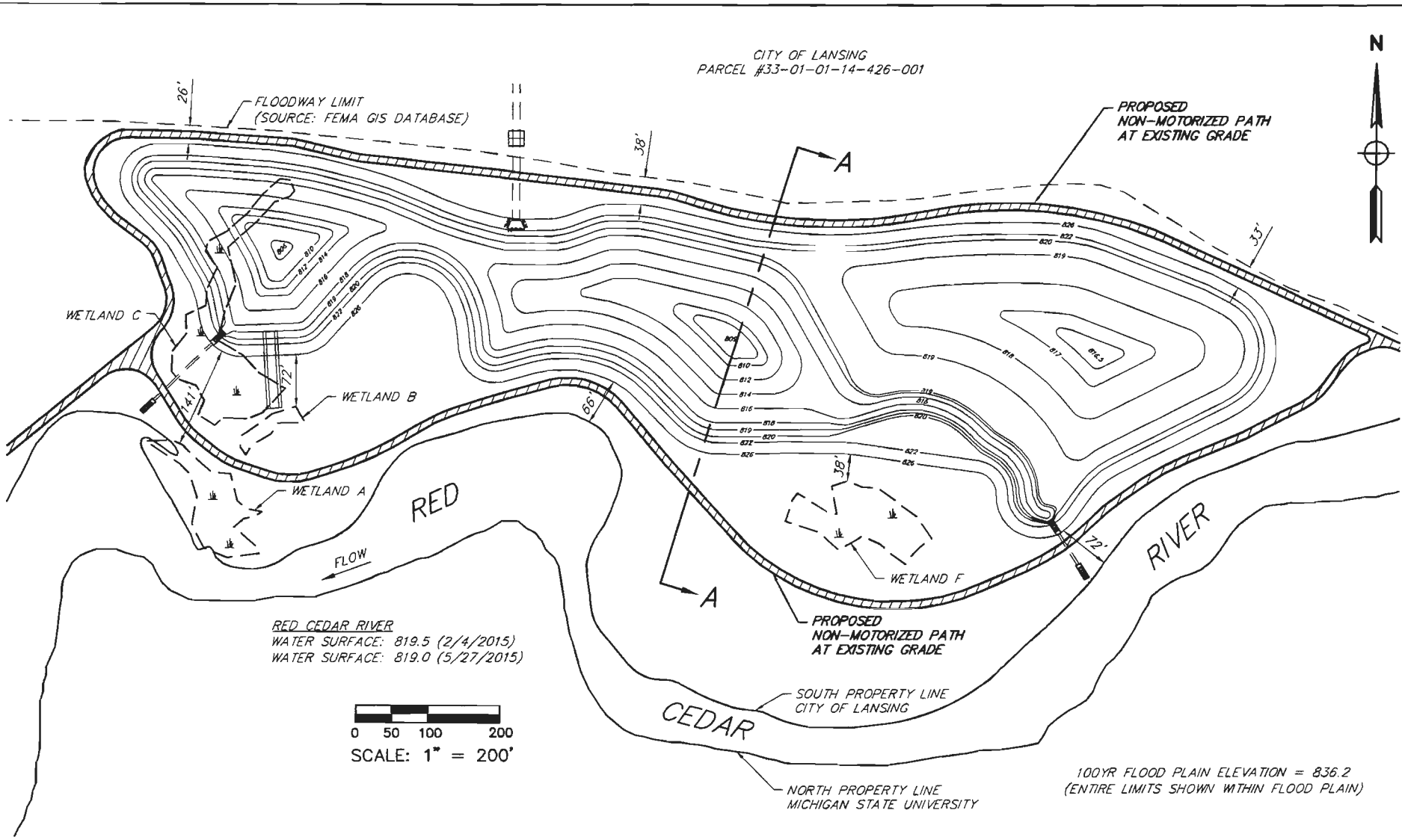
100YR FLOOD PLAIN ELEVATION = 836.2
(ENTIRE LIMITS SHOWN WITHIN FLOOD PLAIN)

REFERENCE DATUM NAVD88

STORMWATER TREATMENT POND	
SURFACE AREA	291,852 SF (6.7 ACRE)
TOP OF STORAGE ELEVATION	819.00
BOTTOM OF STORAGE ELEVATION	806.00
MAXIMUM LENGTH	1628 FT
MAXIMUM WIDTH	436 FT
MAXIMUM DEPTH	13 FT
MAXIMUM SLOPE	4:1
POND EXCAVATION	
AVERAGE LENGTH	1434 FT
AVERAGE WIDTH	300 FT
AVERAGE DEPTH	8 FT
1434 X 300 X 8	3,441,600 CU FT (127,467 CU YD)
TOTAL FILL	(0 CU YD)

PART 31 – WATER RESOURCES PROTECTION
PROPOSED STORMWATER TREATMENT POND

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	2 OF 2
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC–GP–31–1



REFERENCE DATUM NAVD88

NOTE:

TEMPORARY STOCKPILING WILL OCCUR DURING CONSTRUCTION AND WILL BE ULTIMATELY HAULED AWAY TO UPLAND NON FLOODPLAIN DEPOSIT SITE

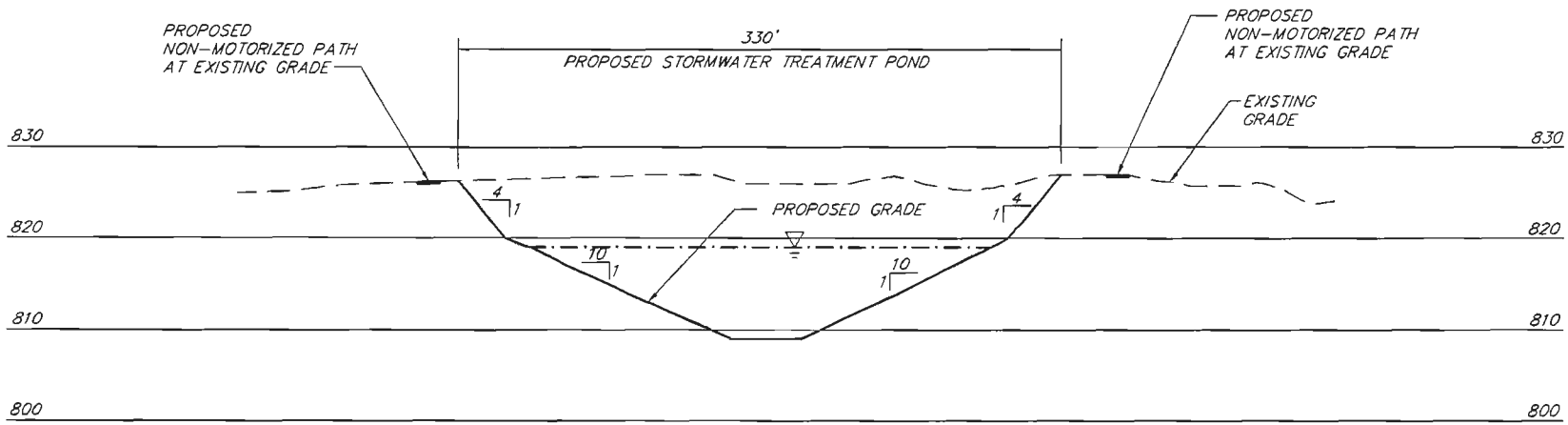
SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

PART 31 – WATER RESOURCES PROTECTION
PROPOSED NON-MOTORIZED PATH

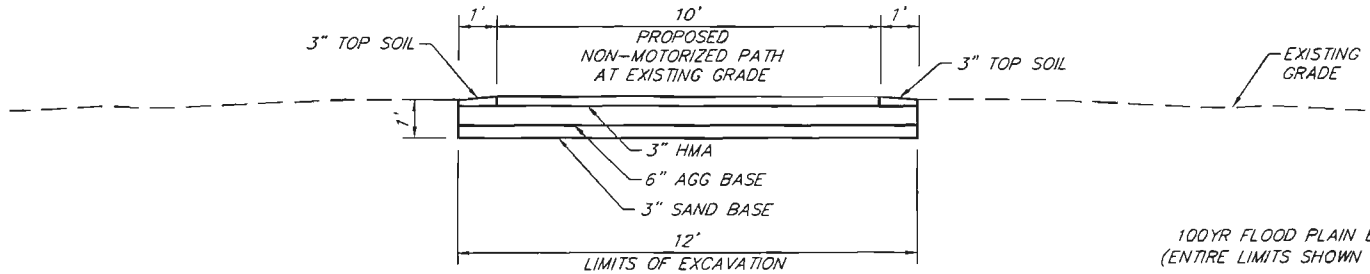
APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 2
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-2



SECTION A–A

0 25 50 100
1"=100'
HORIZONTAL SCALE

0 5 10 20
1"=20'
VERTICAL SCALE



100YR FLOOD PLAIN ELEVATION = 836.2
(ENTIRE LIMITS SHOWN WITHIN FLOOD PLAIN)

TYPICAL SECTION

REFERENCE DATUM NAVD88

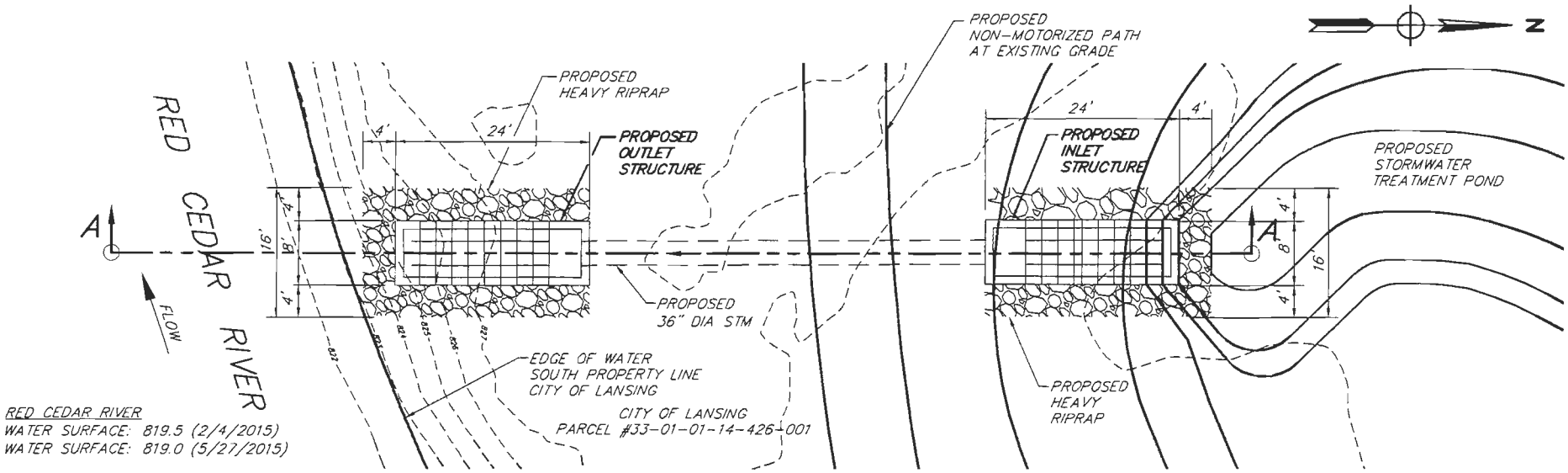
0 1.25 2.5 5
SCALE: 1"=5'

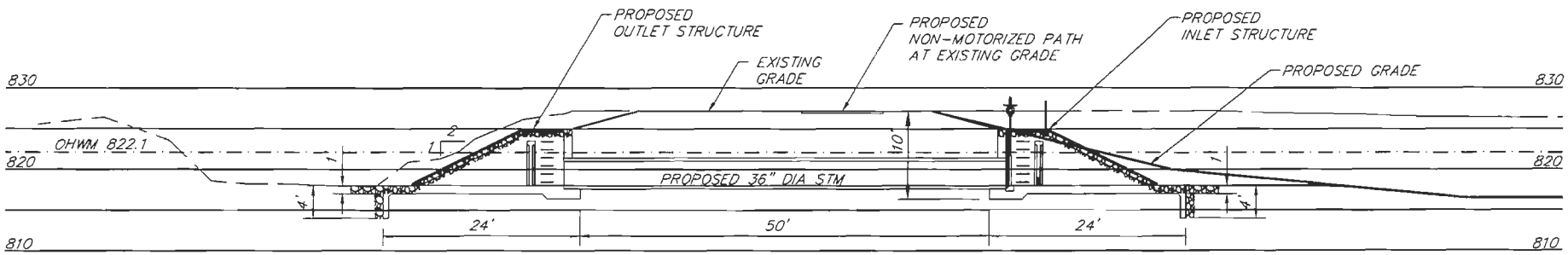
PATH EXCAVATION

LENGTH	4720 FT
WIDTH	10 FT
DEPTH	1 FT
4720 X 10 X 1	47,200 CU FT (1,748 CU YD)
TOTAL FILL	(1,748 CU YD)

PART 31 – WATER RESOURCES PROTECTION
PROPOSED NON-MOTORIZED PATH

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	2 OF 2
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC–GP–31–2





SECTION A–A

OUTFALL STRUCTURE EXCAVATION
TOTAL CUT (100 FT X 10 FT X 10 FT / 27) = 370 CU YD
TOTAL FILL = 350 CU YD

0 5 10 20
SCALE: 1" = 20'

100YR FLOOD PLAIN ELEVATION = 836.2
(ENTIRE LIMITS SHOWN WITHIN FLOOD PLAIN)

REFERENCE DATUM NAVD88

NOTE:

SEE EXHIBIT ICDC-GP-31-1 FOR OUTFALL STRUCTURE LOCATION

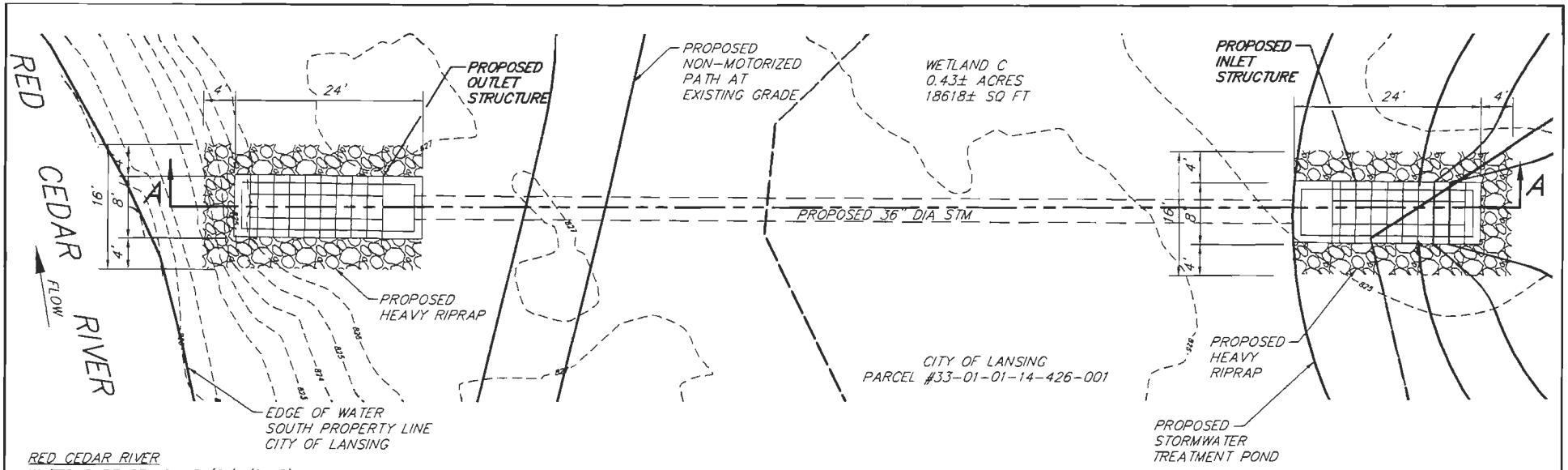
SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

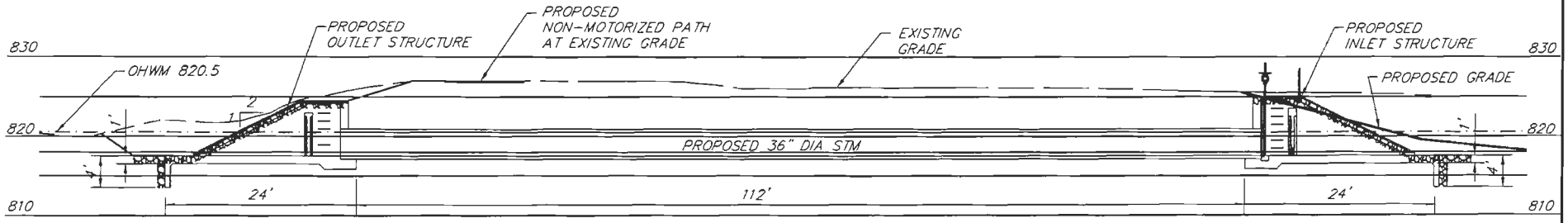
SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

PART 31 – WATER RESOURCES PROTECTION
PROPOSED EAST OUTFALL STRUCTURE

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC–GP–31–3



RED CEDAR RIVER
WATER SURFACE: 819.5 (2/4/2015)
WATER SURFACE: 819.0 (5/27/2015)



SECTION A–A

OUTFALL STRUCTURE EXCAVATION
TOTAL CUT (160 FT X 10 FT X 10 FT / 27) = 593 CU YD
TOTAL FILL = 573 CU YD

0 2.5 5 10
SCALE: 1" = 10'

100YR FLOOD PLAIN ELEVATION = 836.2
(ENTIRE LIMITS SHOWN WITHIN FLOOD PLAIN)

REFERENCE DATUM NAVD88

NOTE:

SEE EXHIBIT ICDC-GP-31-1 FOR OUTFALL STRUCTURE LOCATION

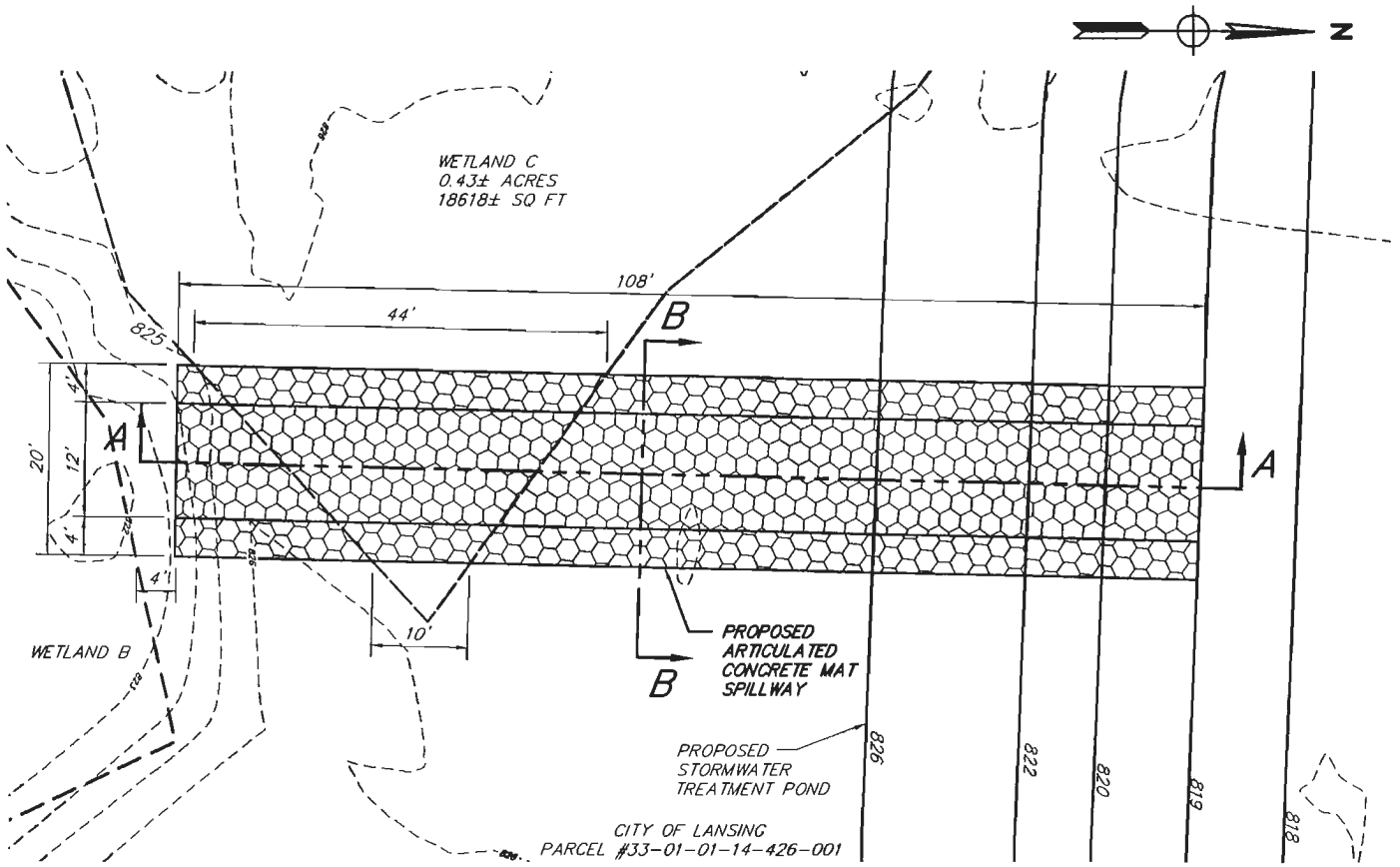
SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

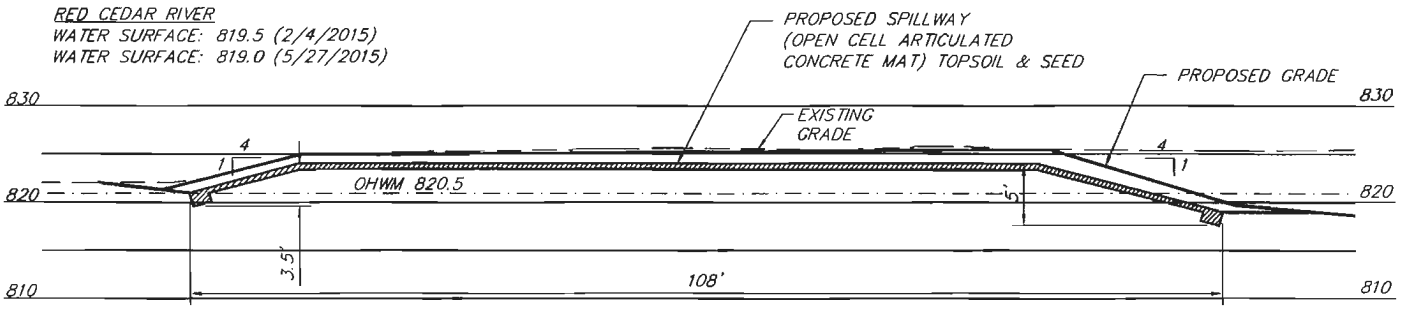
SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

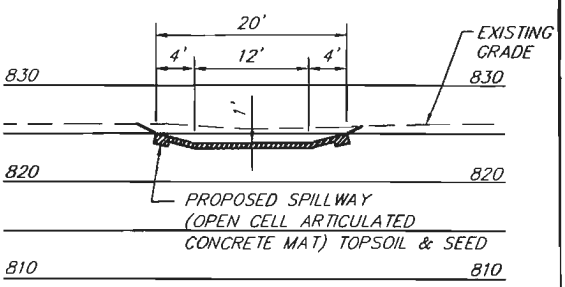
PART 31 – WATER RESOURCES PROTECTION
PROPOSED WEST OUTFALL STRUCTURE

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-4





SECTION A–A



SECTION B–B

0 5 10 20
SCALE: 1" = 20'

OVERFLOW SPILLWAY EXCAVATION
TOTAL CUT (108 FT X 20 FT X 2 FT / 27) = 160 CU YD
TOTAL FILL = 80 CU YD

100YR FLOOD PLAIN ELEVATION = 836.2
(ENTIRE LIMITS SHOWN WITHIN FLOOD PLAIN)

REFERENCE DATUM NAVD88

NOTE:

SEE EXHIBIT ICDC-GP-31-1 FOR OVERFLOW SPILLWAY STRUCTURE LOCATION

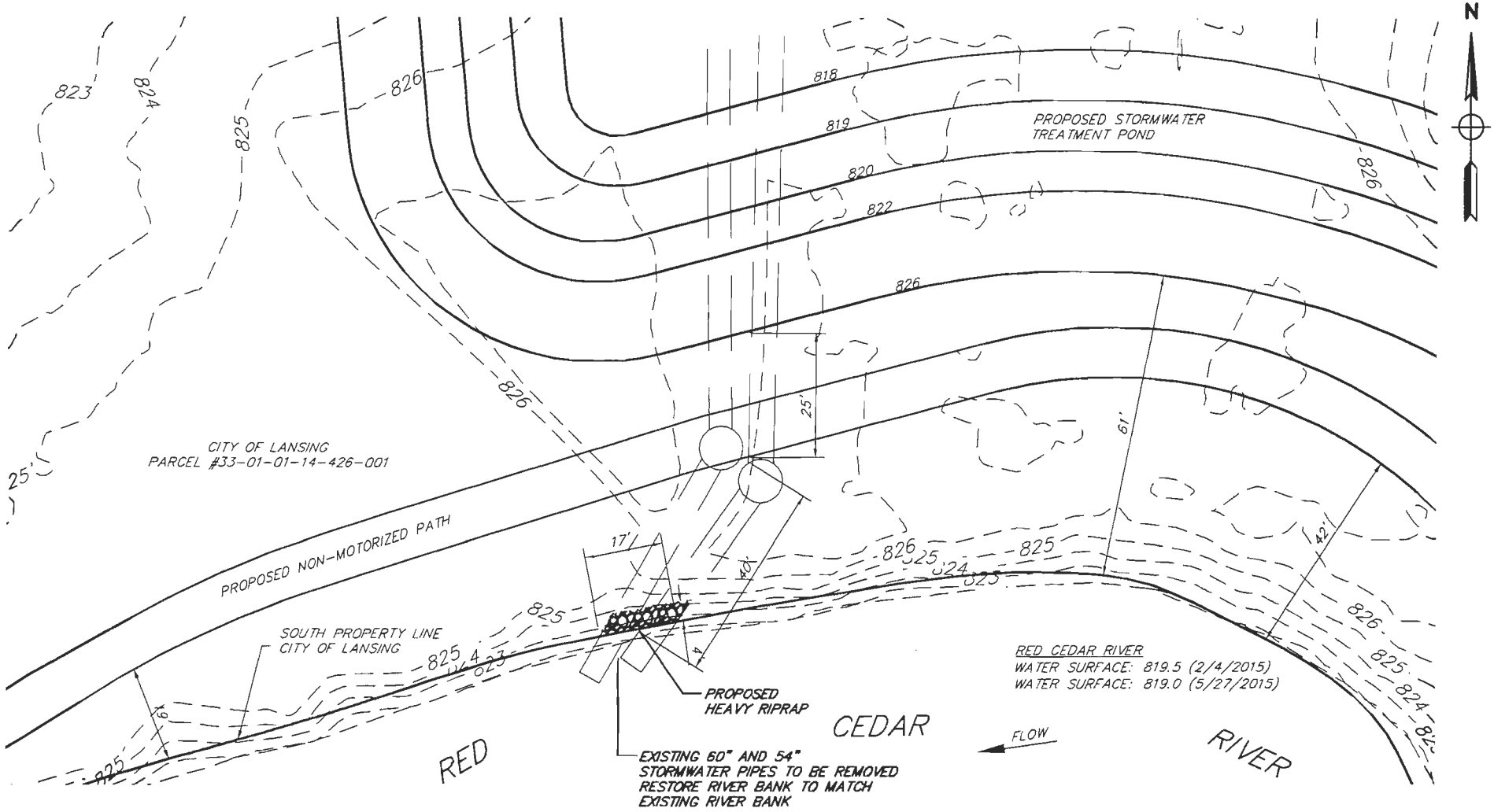
SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

PART 31 – WATER RESOURCES PROTECTION
PROPOSED OVERFLOW SPILLWAY

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-5



OUTLET STRUCTURE EXCAVATION
TOTAL CUT (65 FT X 17 FT X 10 FT / 27) = 410 CU YD
TOTAL FILL = 400 CU YD

0 10 20 40
SCALE: 1" = 40'

100YR FLOOD PLAIN ELEVATION = 836.2
(ENTIRE LIMITS SHOWN WITHIN FLOOD PLAIN)

REFERENCE DATUM NAVD88

NOTE:

SEE EXHIBIT ICDC-GP-31-1 FOR EXISTING OUTFALL STRUCTURE LOCATION

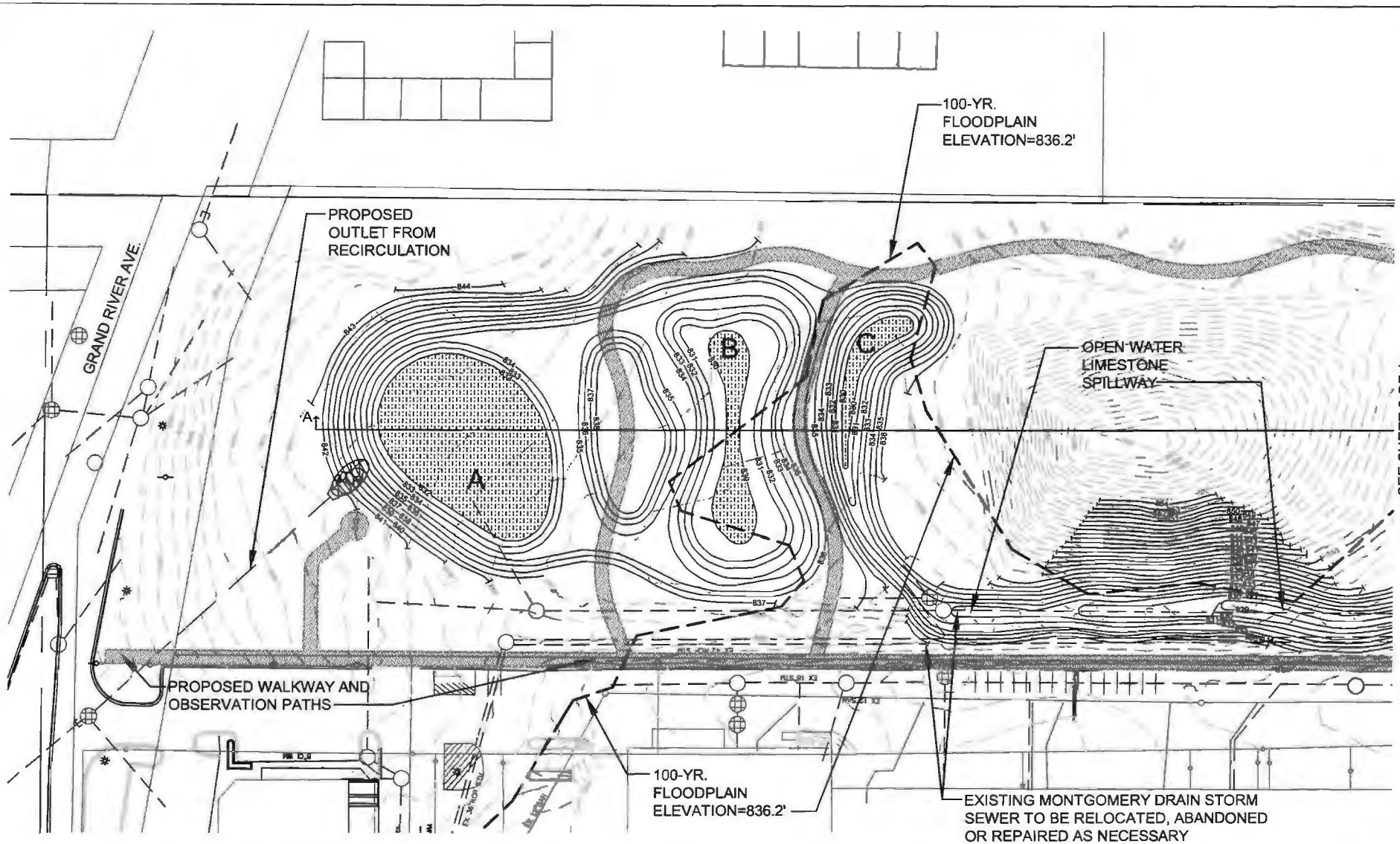
SEE NOTIFICATION LIST FOR NEIGHBORING PROPERTY OWNERS

SESC MEASURES WILL BE PERFORMED ACCORDING INGHAM COUNTY DRAIN OFFICE (A.C.E.A.) STANDARDS AND APPROVED PLAN

SEE EXHIBIT ICDC-GP-REFERENCE POINTS-1 FOR PROPERTY CORNERS, BENCHMARKS AND REFERENCE POINTS

PART 31 – WATER RESOURCES PROTECTION
REMOVE EXISTING STORMWATER OUTFALL STRUCTURE

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	RED CEDAR RIVER
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 1
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-6



LEGEND

EXISTING CONTOURS

PROPOSED CONTOURS

CROSS SECTION LOCATIONS

FLOODPLAIN VOLUME CALCULATION SUMMARY (CALCULATED USING AUTOCAD 2015 CIVIL 3D)
*SEE THE FOLLOWING FIGURES FOR SPECIFIC LOCATION DETAILS.

TOTAL NET VOLUME OF FLOODPLAIN CUT & FILL: 15.42 AC-FT OR 671,695 CFT OF NET CUT

TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 17.10 AC-FT OR 744,876 CFT (INCLUDES AREA OUTSIDE 100-YR. FLOODPLAIN)

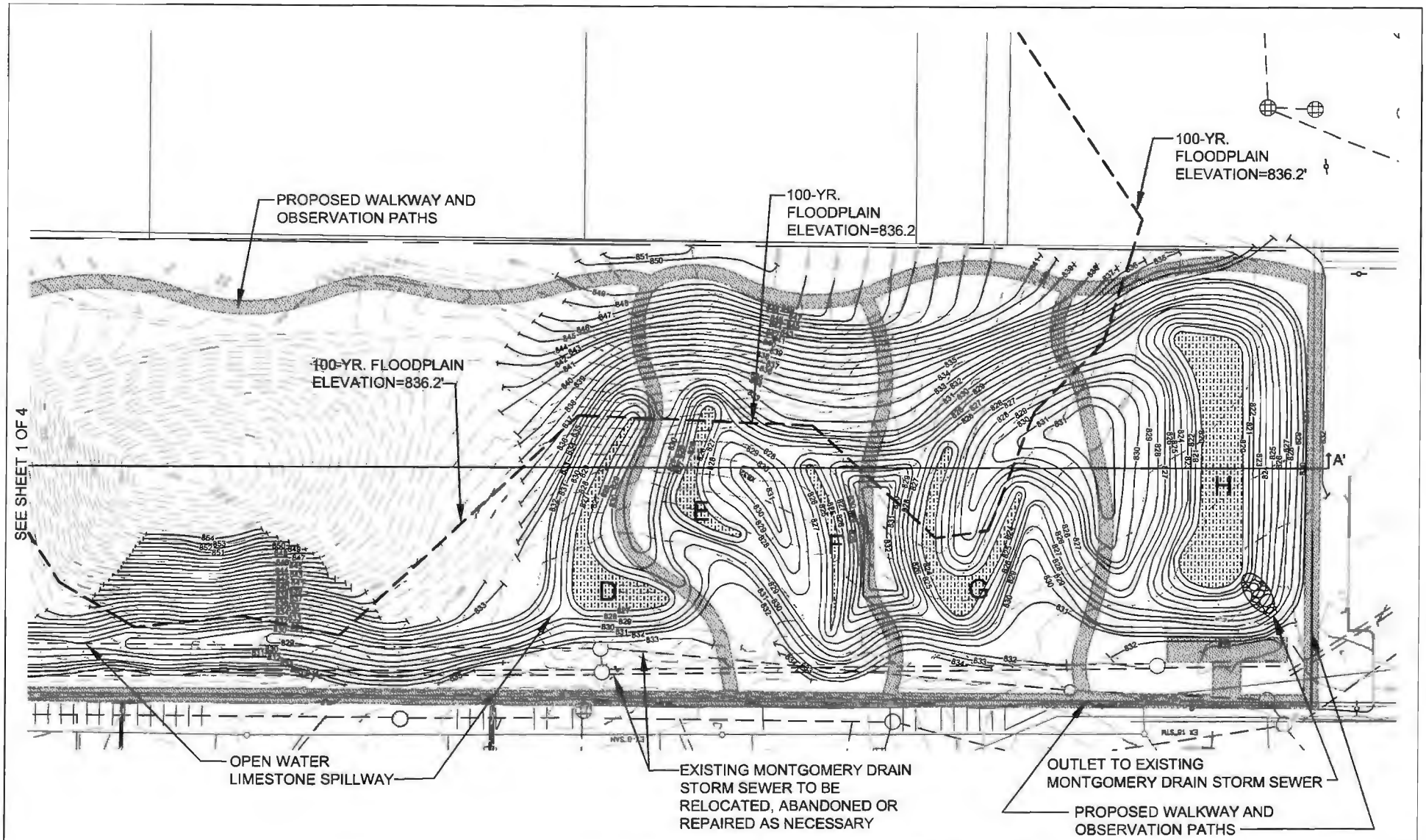
N

0 25 50 100

SCALE: 1" = 100'

RANNEY STORMWATER TREATMENT PONDS
PLAN VIEW (NORTH)

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 4
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-7A



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- CROSS SECTION LOCATIONS

FLOODPLAIN VOLUME CALCULATION SUMMARY (CALCULATED USING AUTOCAD 2015 CIVIL 3D)
*SEE THE FOLLOWING FIGURES FOR SPECIFIC LOCATION DETAILS.

TOTAL NET VOLUME OF FLOODPLAIN CUT & FILL: 15.42 AC-FT OR 671,695 CFT OF NET CUT

TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 17.10 AC-FT OR 744,876 CFT (INCLUDES AREA OUTSIDE 100-YR. FLOODPLAIN)

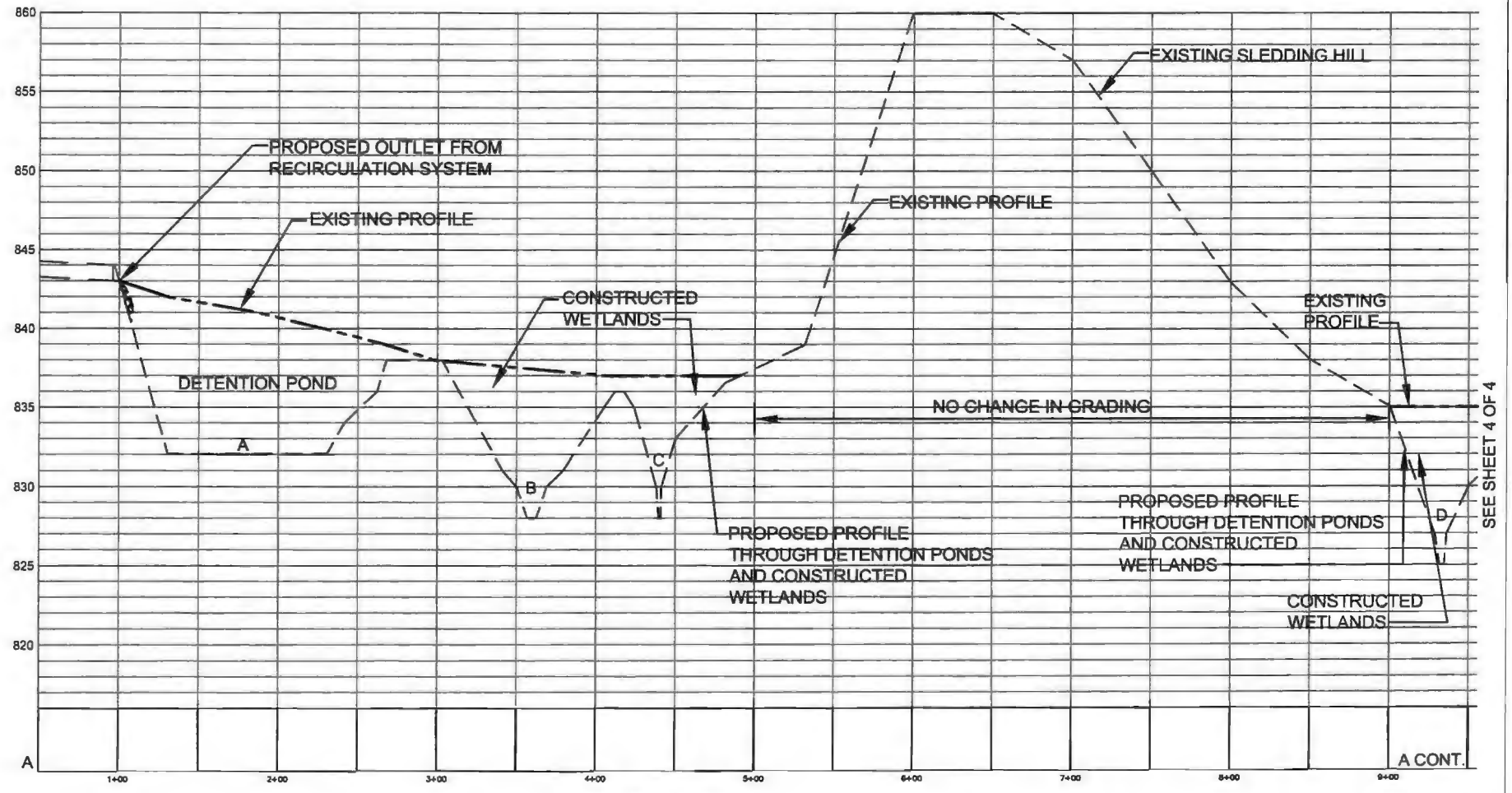
N

0 25 50 100

SCALE: 1" = 100'

RANNEY STORMWATER TREATMENT PONDS
PLAN VIEW (SOUTH)

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	2 OF 4
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-7B



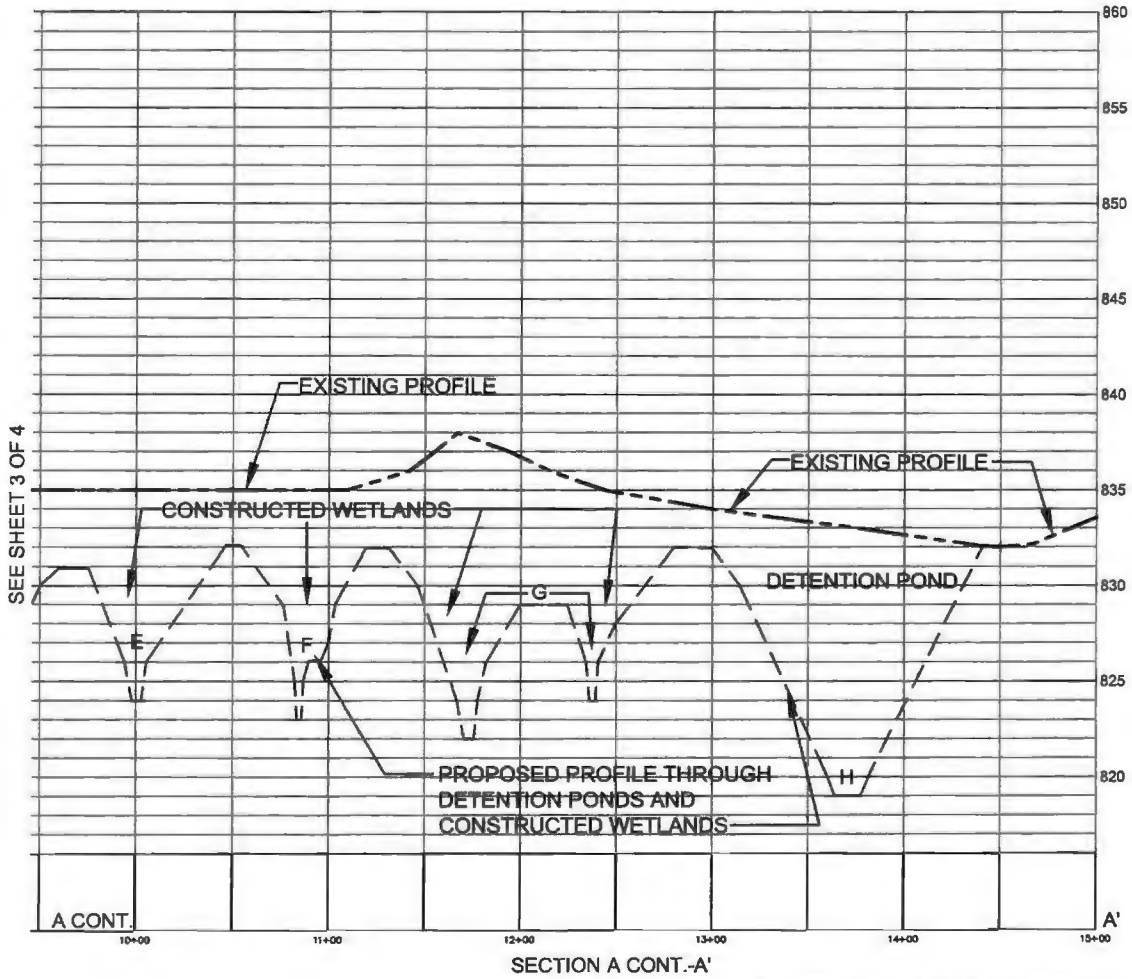
SECTION A-A CONT.

0 25 50 100

SCALE: 1" = 100'

RANNEY STORMWATER TREATMENT PONDS
PLAN & PROFILE (NORTH)

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	3 OF 4
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-7C



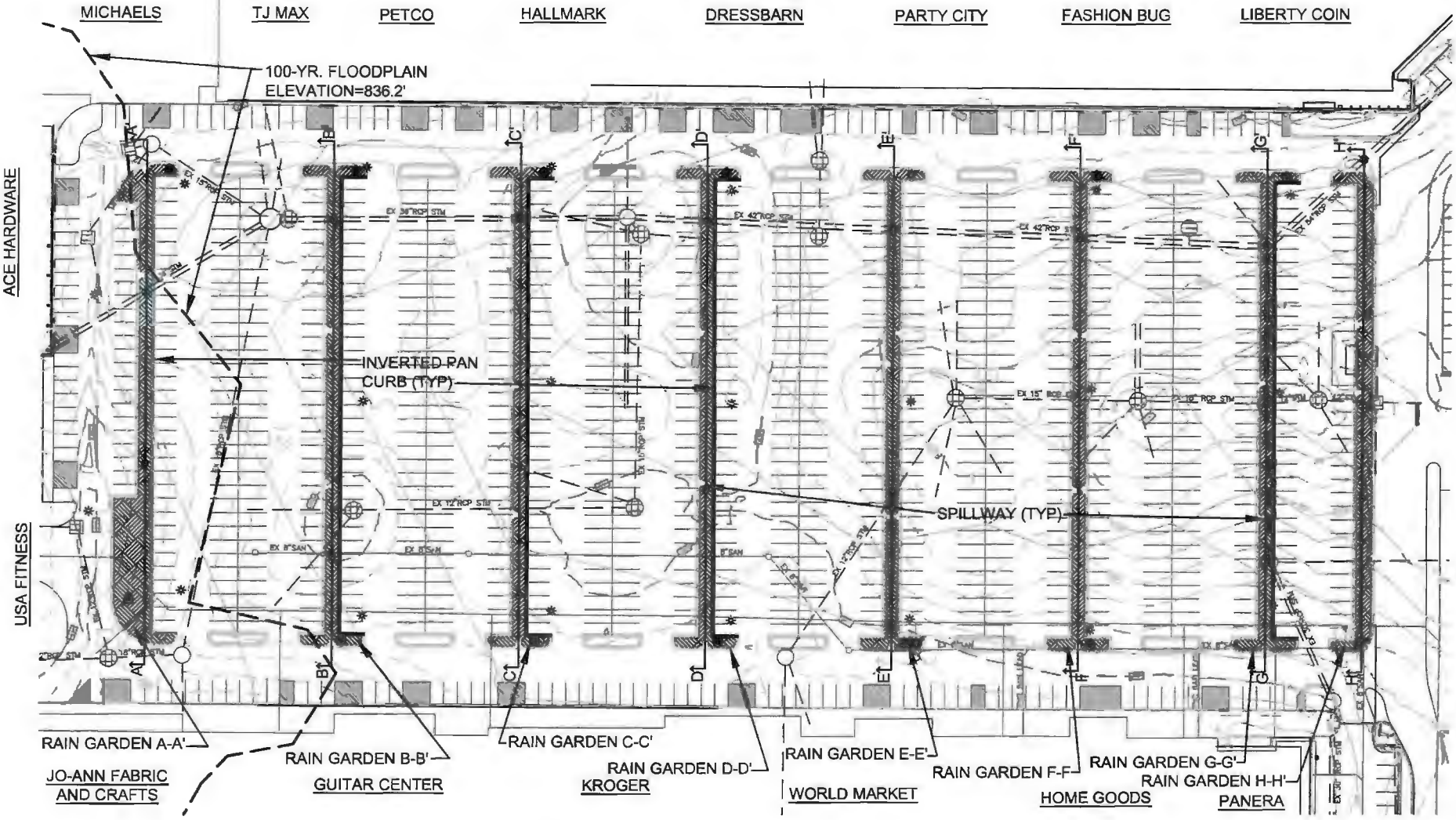
SECTION A CONT.-A'

0 25 50 100

SCALE: 1" = 100'

RANNEY STORMWATER TREATMENT PONDS
PLAN & PROFILE (SOUTH)

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	4 OF 4
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-7D



LEGEND

- ROAD RIGHT OF WAY
- PARCEL LINE
- RAINGARDEN LOCATION
- A-A' CROSS SECTION LOCATIONS

FLOODPLAIN VOLUME CALCULATION SUMMARY (CALCULATED USING AUTOCAD 2015 CIVIL 3D)
*SEE THE FOLLOWING FIGURES FOR SPECIFIC LOCATION DETAILS.

TOTAL VOLUME OF FLOODPLAIN CUT (ENTIRE SITE): 1.75 AC-FT OR 76,230 CFT

TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 0.45 AC-FT OR 19,602 CFT (ENTIRE SITE)

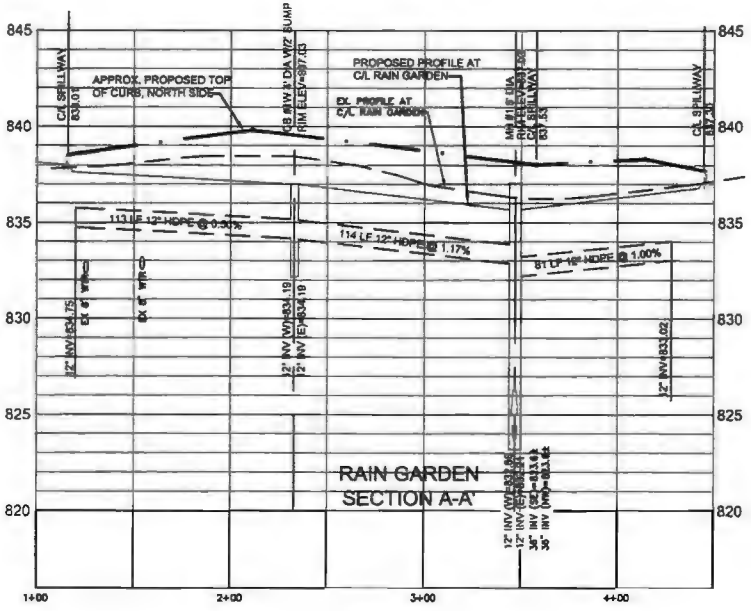
N

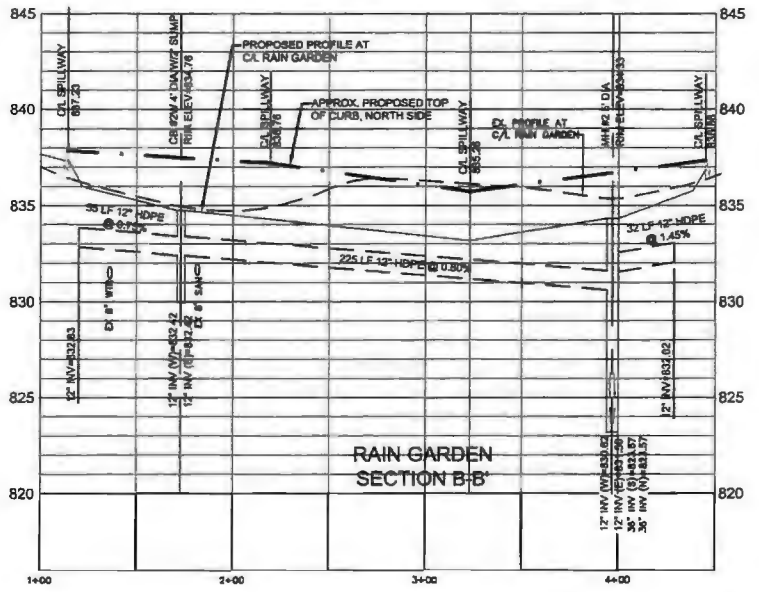
0 25 50 100

SCALE: 1" = 100'

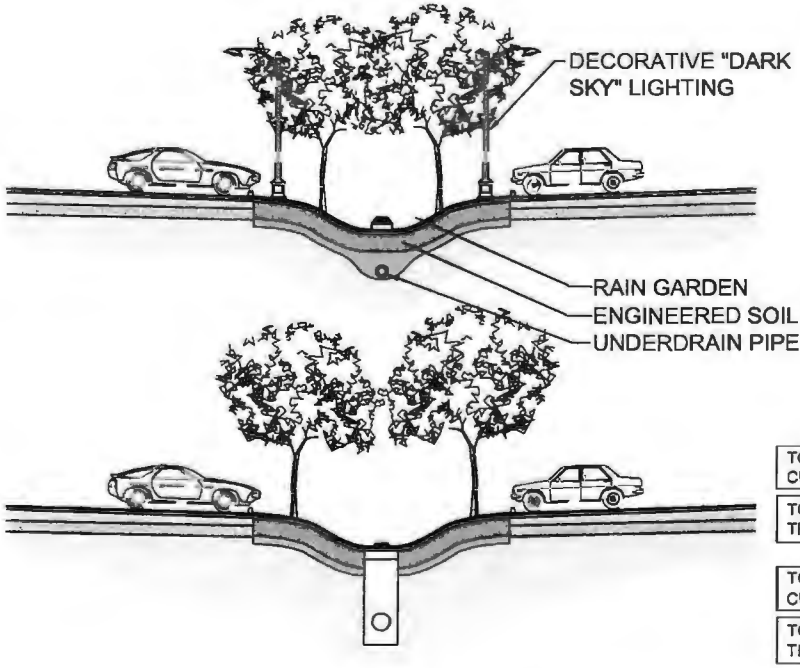
FRANDOR AREA STORMWATER PLAN (NORTH)

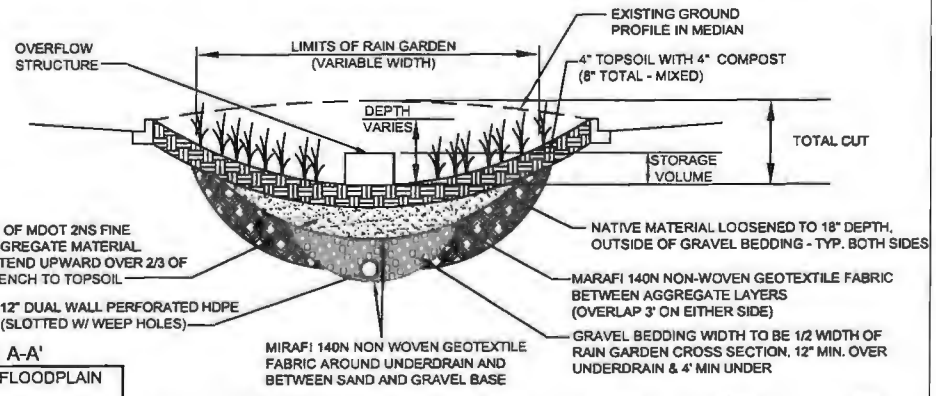
APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 5
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-8A





SCALE:
HORIZONTAL 1" = 100'
VERTICAL 1" = 10'





SECTION A-A'

TOTAL VOLUME OF FLOODPLAIN CUT: 4,461 CFT
TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 4,689 CFT

SECTION B-B'

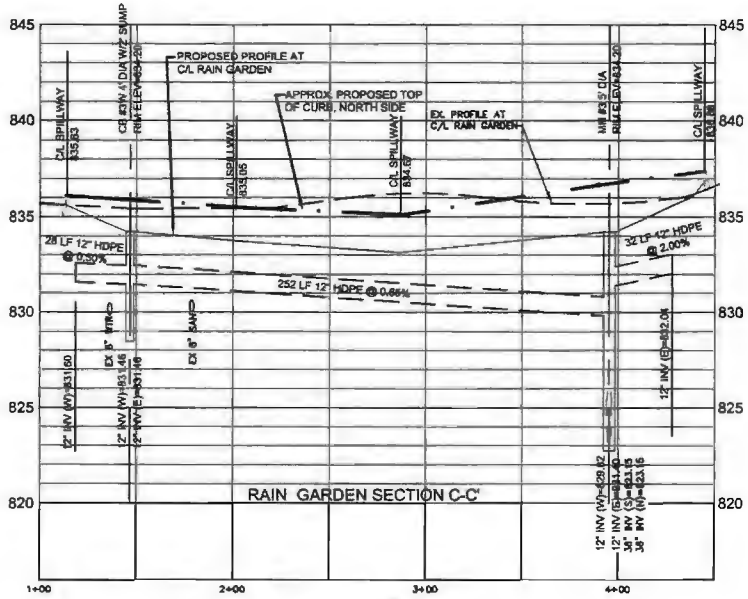
TOTAL VOLUME OF FLOODPLAIN CUT: 3,707 CFT
TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 1,610 CFT

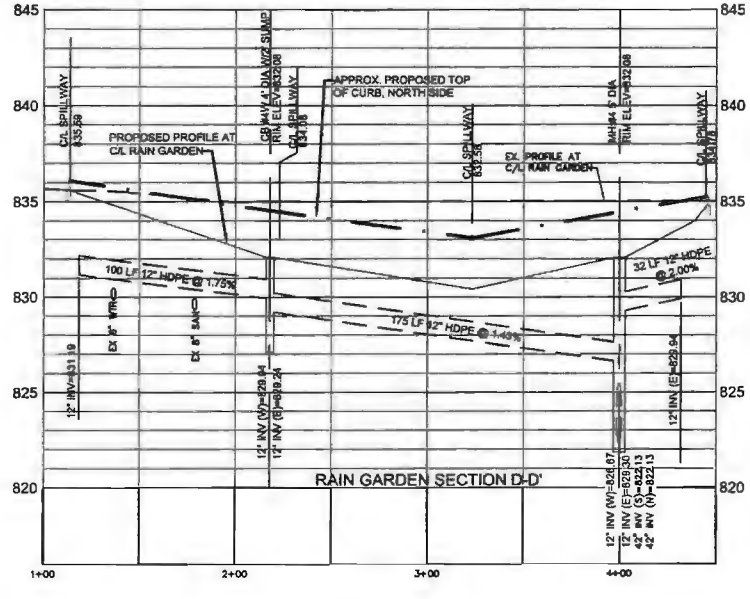
FRANDOR AREA RAIN GARDEN DETAILS

NO SCALE

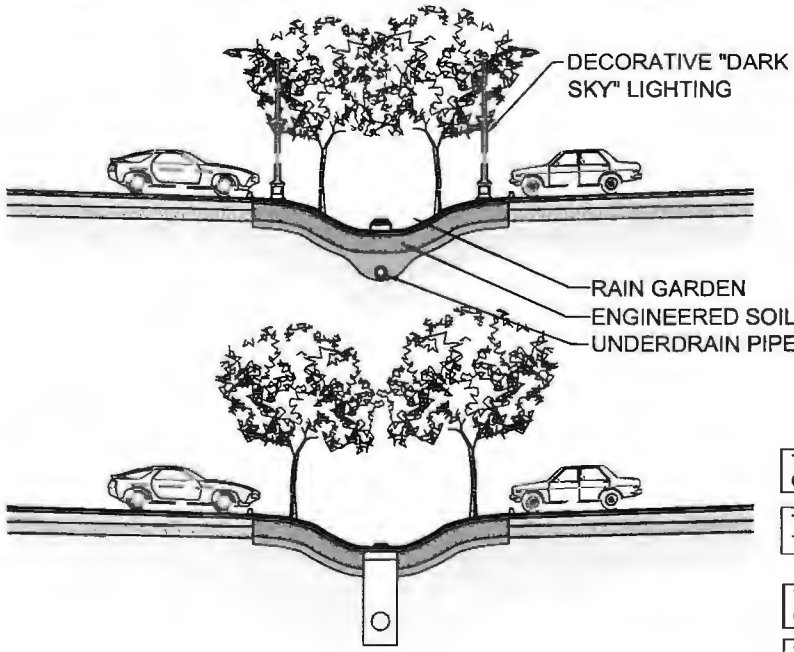
FRANDOR AREA STORMWATER PLAN (NORTH)
RAIN GARDEN PLAN & PROFILE

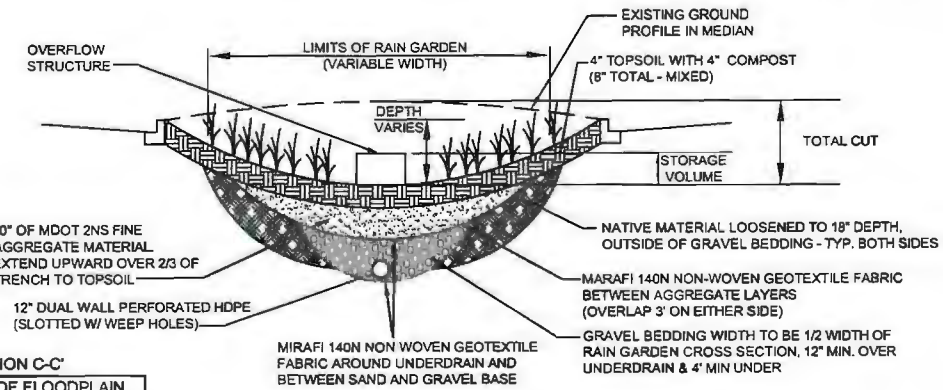
APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	2 OF 5
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-8B





SCALE:
HORIZONTAL 1" = 100'
VERTICAL 1" = 10'





SECTION C-C'

TOTAL VOLUME OF FLOODPLAIN CUT: 3,972 CFT

TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 1,936 CFT

SECTION D-D'

TOTAL VOLUME OF FLOODPLAIN CUT: 5,561 CFT

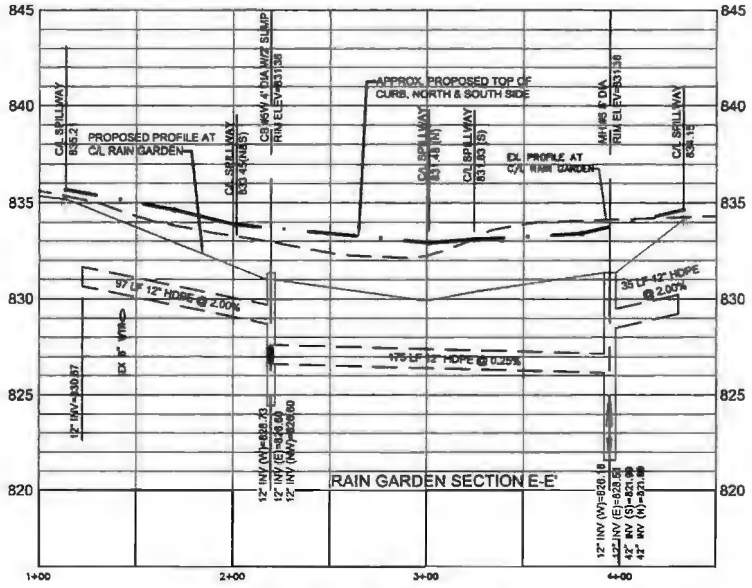
TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 2,124 CFT

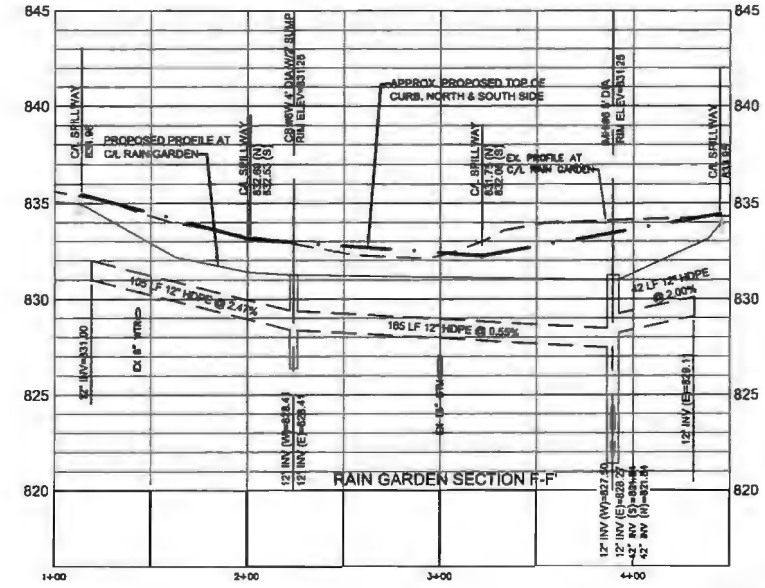
FRANDOR AREA RAIN GARDEN DETAILS

NO SCALE

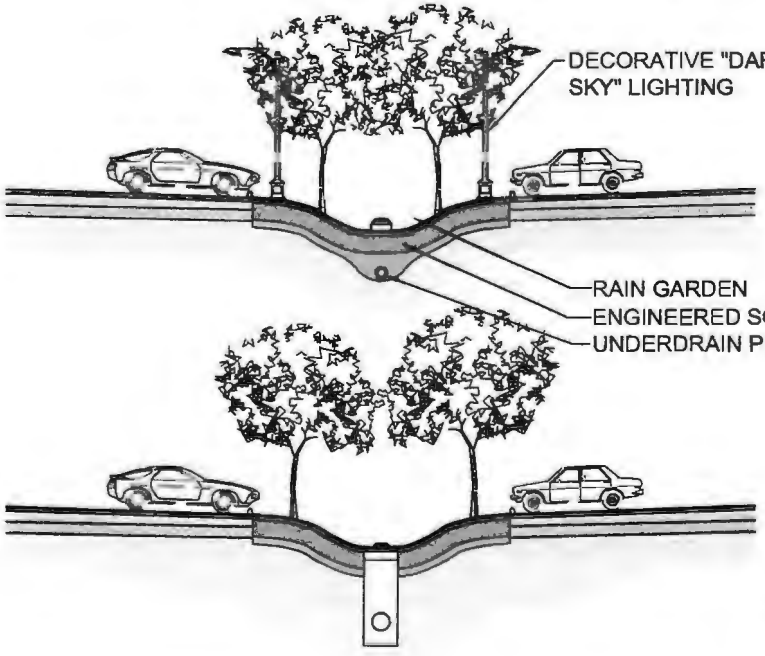
FRANDOR AREA STORMWATER PLAN (NORTH)
RAIN GARDEN PLAN & PROFILE

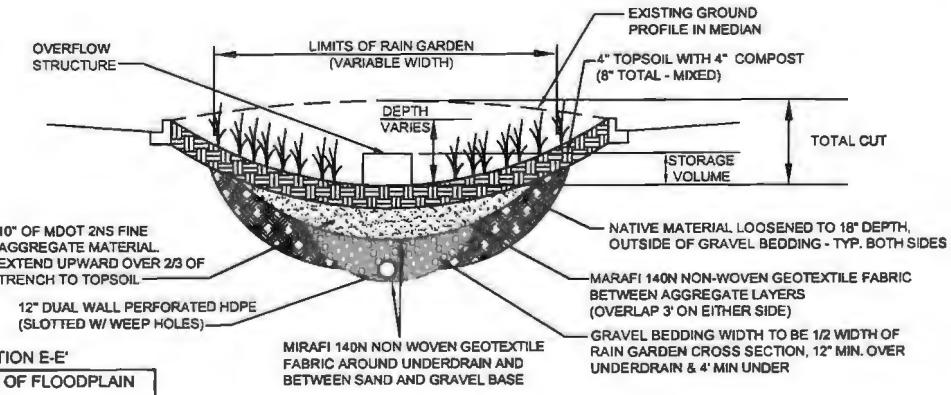
APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	3 OF 5
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-8C





SCALE:
HORIZONTAL 1" = 100'
VERTICAL 1" = 10'





SECTION E-E'

TOTAL VOLUME OF FLOODPLAIN CUT: 4,083 CFT
TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 1,960 CFT

SECTION F-F'

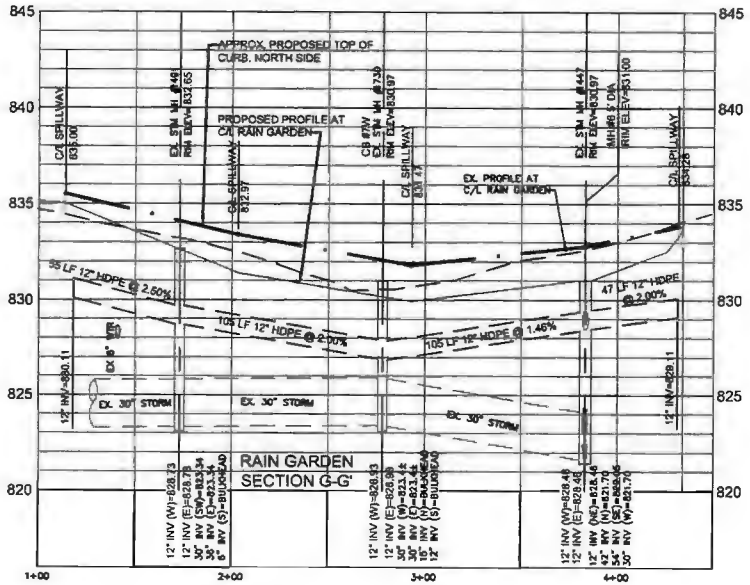
TOTAL VOLUME OF FLOODPLAIN CUT: 3,707 CFT
TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 420 CFT

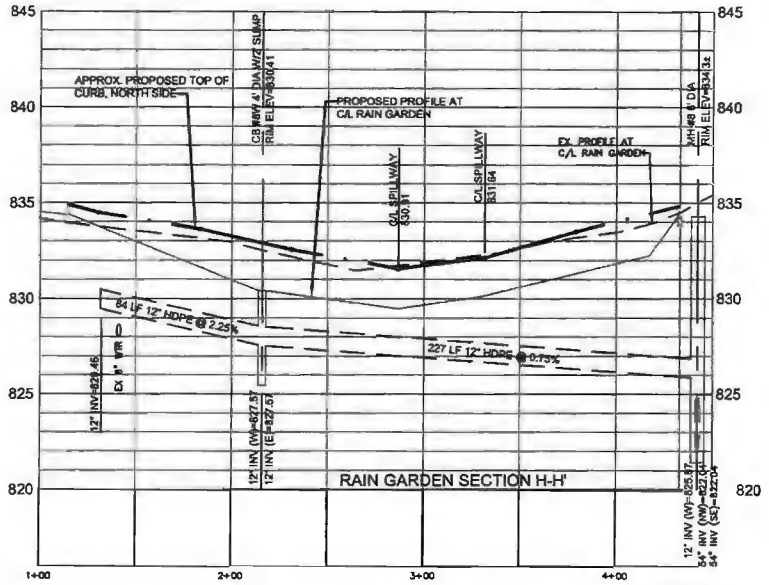
FRANDOR AREA RAIN GARDEN DETAILS

NO SCALE

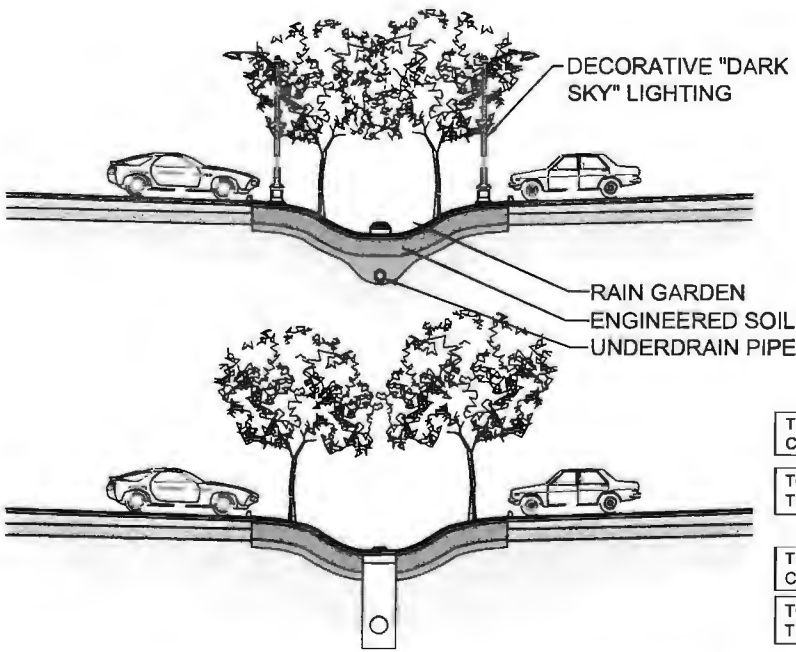
FRANDOR AREA STORMWATER PLAN (NORTH)
RAIN GARDEN PLAN & PROFILE

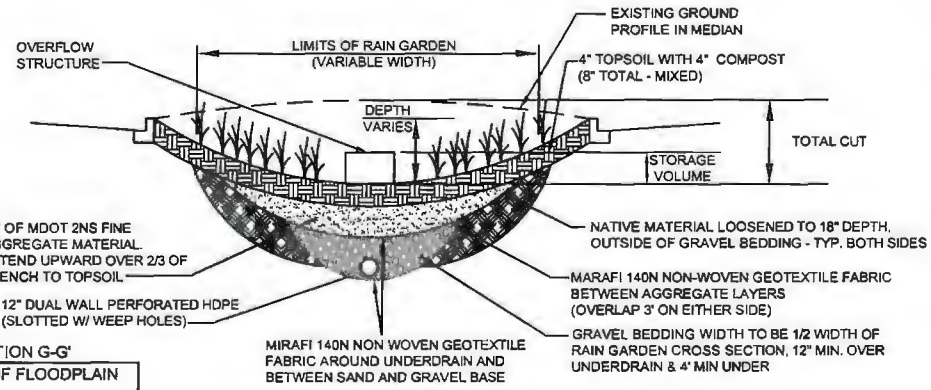
APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	4 OF 5
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-8D





SCALE:
HORIZONTAL 1" = 100'
VERTICAL 1" = 10'





SECTION G-G'

TOTAL VOLUME OF FLOODPLAIN CUT: 1,781 CFT
TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 1,248 CFT

SECTION H-H'

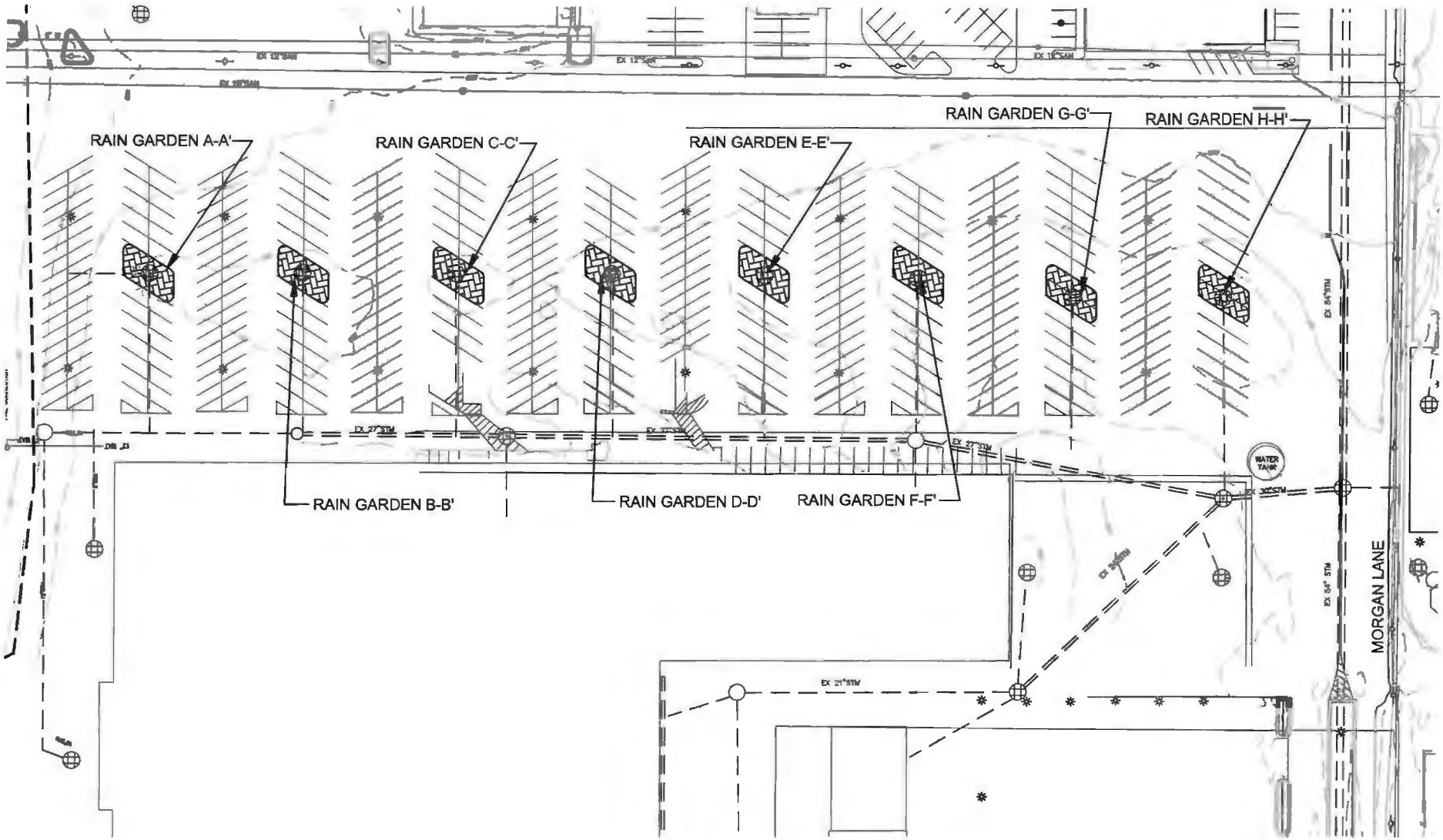
TOTAL VOLUME OF FLOODPLAIN CUT: 4,452 CFT
TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 1,062 CFT

FRANDOR AREA RAIN GARDEN DETAILS

NO SCALE

FRANDOR AREA STORMWATER PLAN (NORTH)
RAINGARDEN PLAN & PROFILE

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	5 OF 5
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC–GP–31–8E



LEGEND

- ROAD RIGHT OF WAY
- PARCEL LINE
- RAINGARDEN LOCATION
- A-A' CROSS SECTION LOCATIONS

FLOODPLAIN VOLUME CALCULATION SUMMARY (CALCULATED USING AUTOCAD 2015 CIVIL 3D)
*SEE THE FOLLOWING FIGURES FOR SPECIFIC LOCATION DETAILS.

TOTAL NET VOLUME OF FLOODPLAIN CUT & FILL: 0.32 AC-FT OR 13,939 CFT OF NET CUT

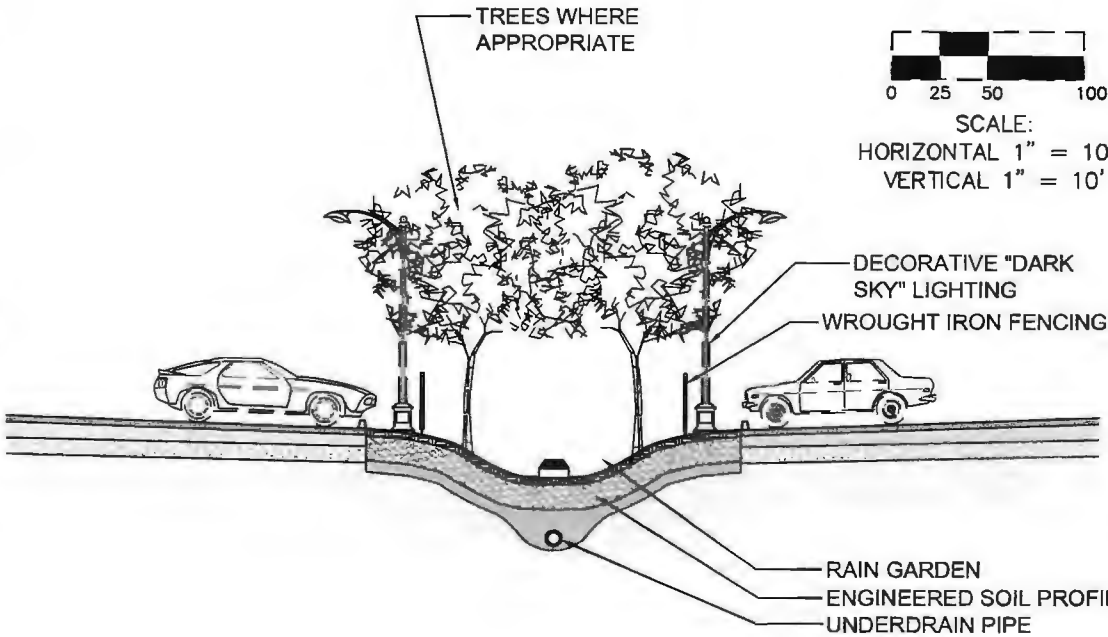
TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 0.21 AC-FT OR 9,148 CFT

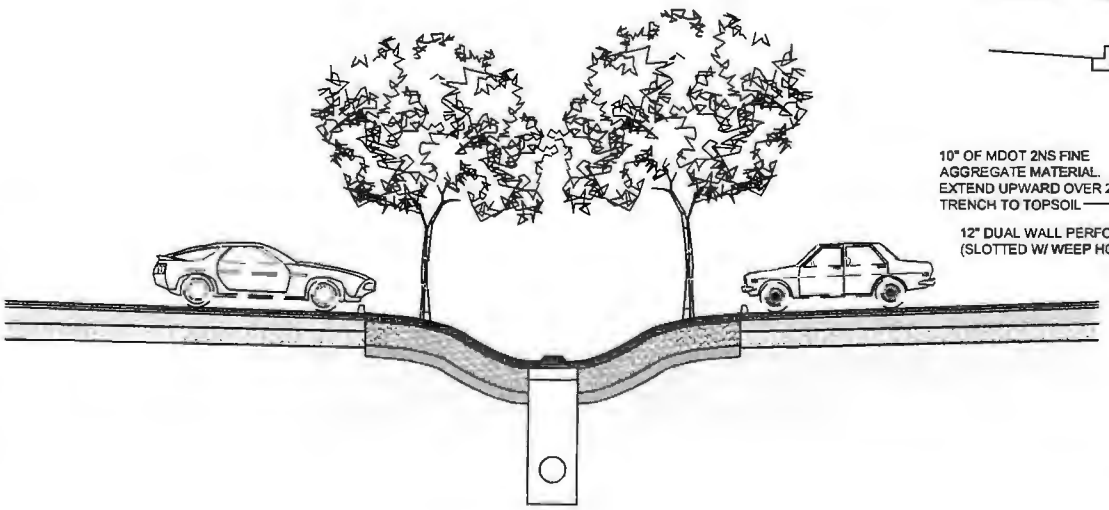
0 25 50 100
SCALE: 1" = 100'

N

FRANDOR AREA STORMWATER PLAN (SOUTH)

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 2
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-9A





FRANDOR AREA (SOUTH) RAIN GARDEN DETAILS

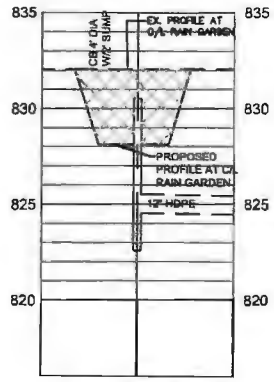
NO SCALE

LEGEND

STORMWATER TREATMENT & STORAGE

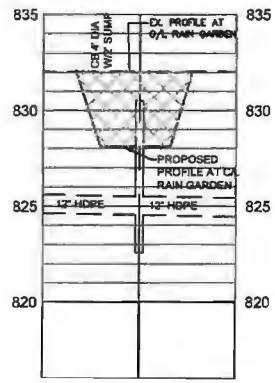
0 25 50 100

SCALE:
HORIZONTAL 1" = 100'
VERTICAL 1" = 10'



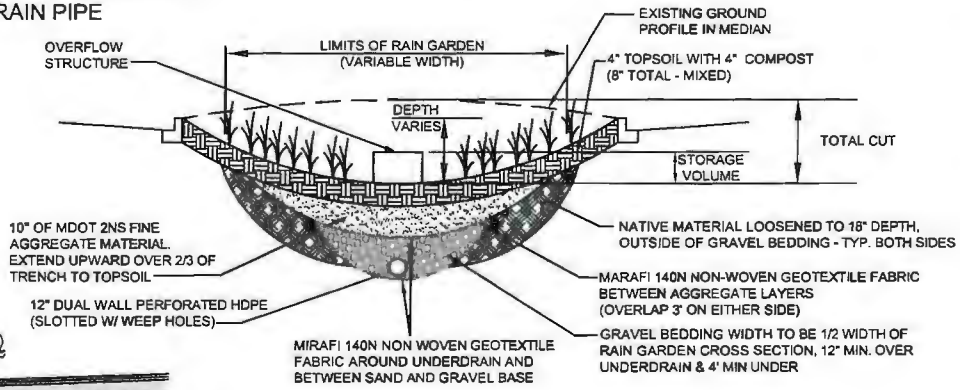
RAIN GARDEN A-A

SECTION A-A'



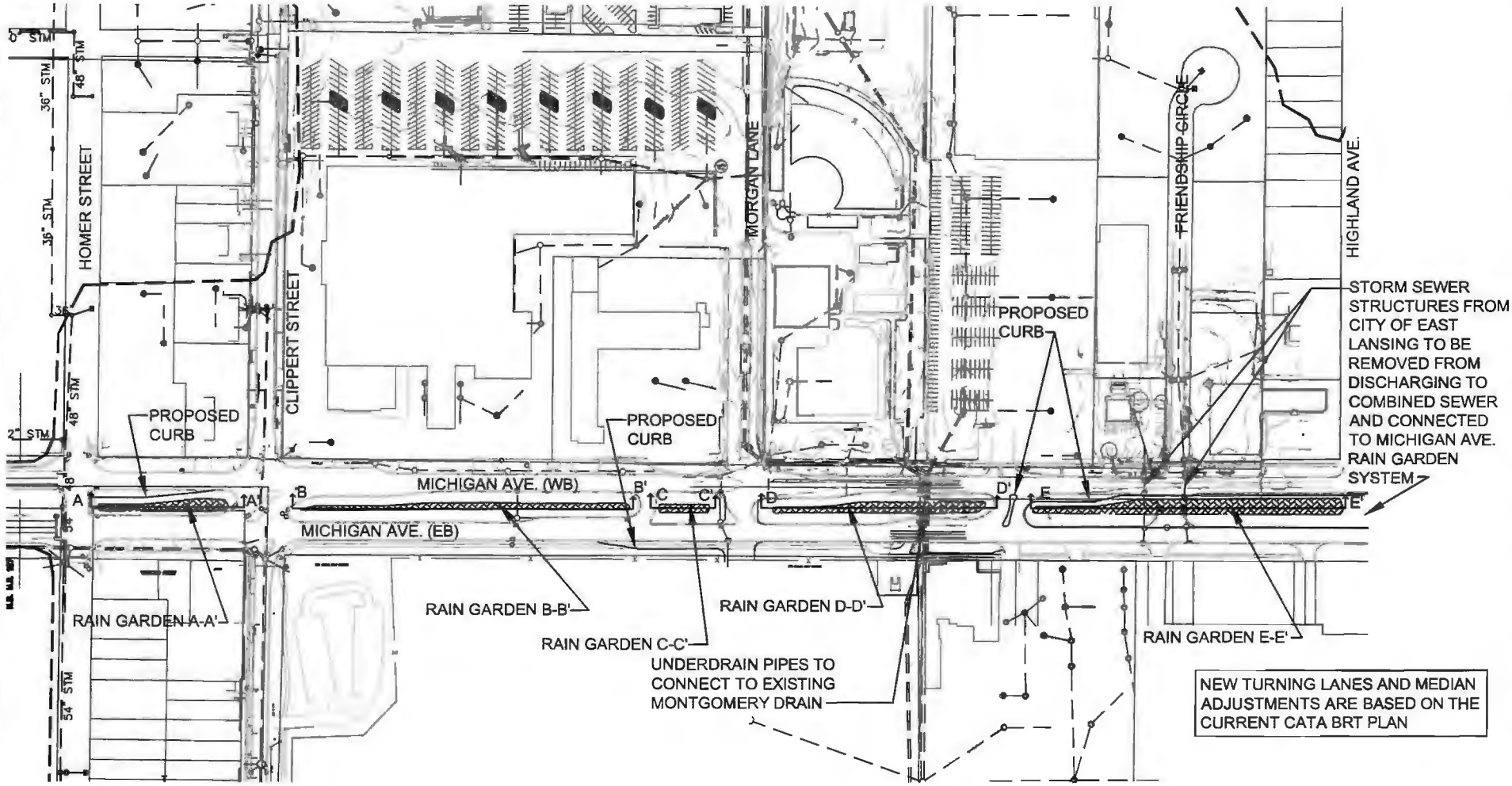
RAIN GARDEN C-C

SECTION C-C'



FRANDOR AREA STORMWATER PLAN (SOUTH)
RAINGARDEN CROSS SECTION TYPICAL

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	2 OF 2
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-9B



LEGEND

- ROAD RIGHT OF WAY
- PARCEL LINE
- RAINGARDEN LOCATION
- A-A' CROSS SECTION LOCATIONS

FLOODPLAIN VOLUME CALCULATION SUMMARY
*SEE THE FOLLOWING FIGURES FOR SPECIFIC LOCATION DETAILS.

TOTAL VOLUME OF FLOODPLAIN CUT: 5.48 AC-FT OR 238,745 CFT

TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 1.85 AC-FT OR 80,554 CFT

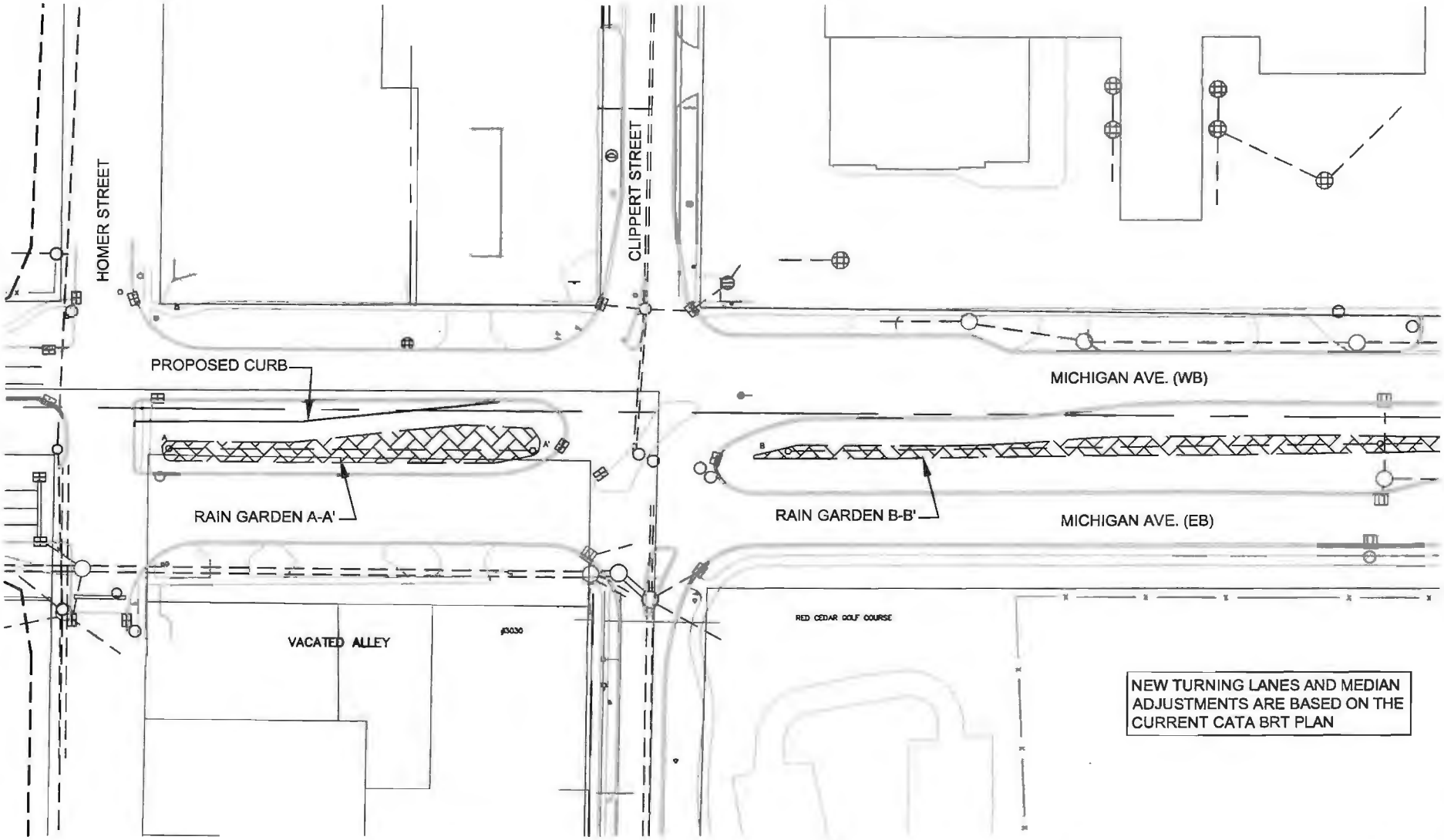
0 75 150 300

SCALE: 1" = 300'

N

MICHIGAN AVE. STORMWATER PLAN

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	1 OF 5
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC–GP–31–10A



LEGEND

- ROAD RIGHT OF WAY
- PARCEL LINE
- RAINGARDEN LOCATION
- A-A' CROSS SECTION LOCATIONS

SECTION A-A'

TOTAL VOLUME OF FLOODPLAIN CUT: 27,210 CFT

TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 9,041 CFT

SECTION B-B'

TOTAL VOLUME OF FLOODPLAIN CUT: 95,977 CFT

TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 21,705 CFT

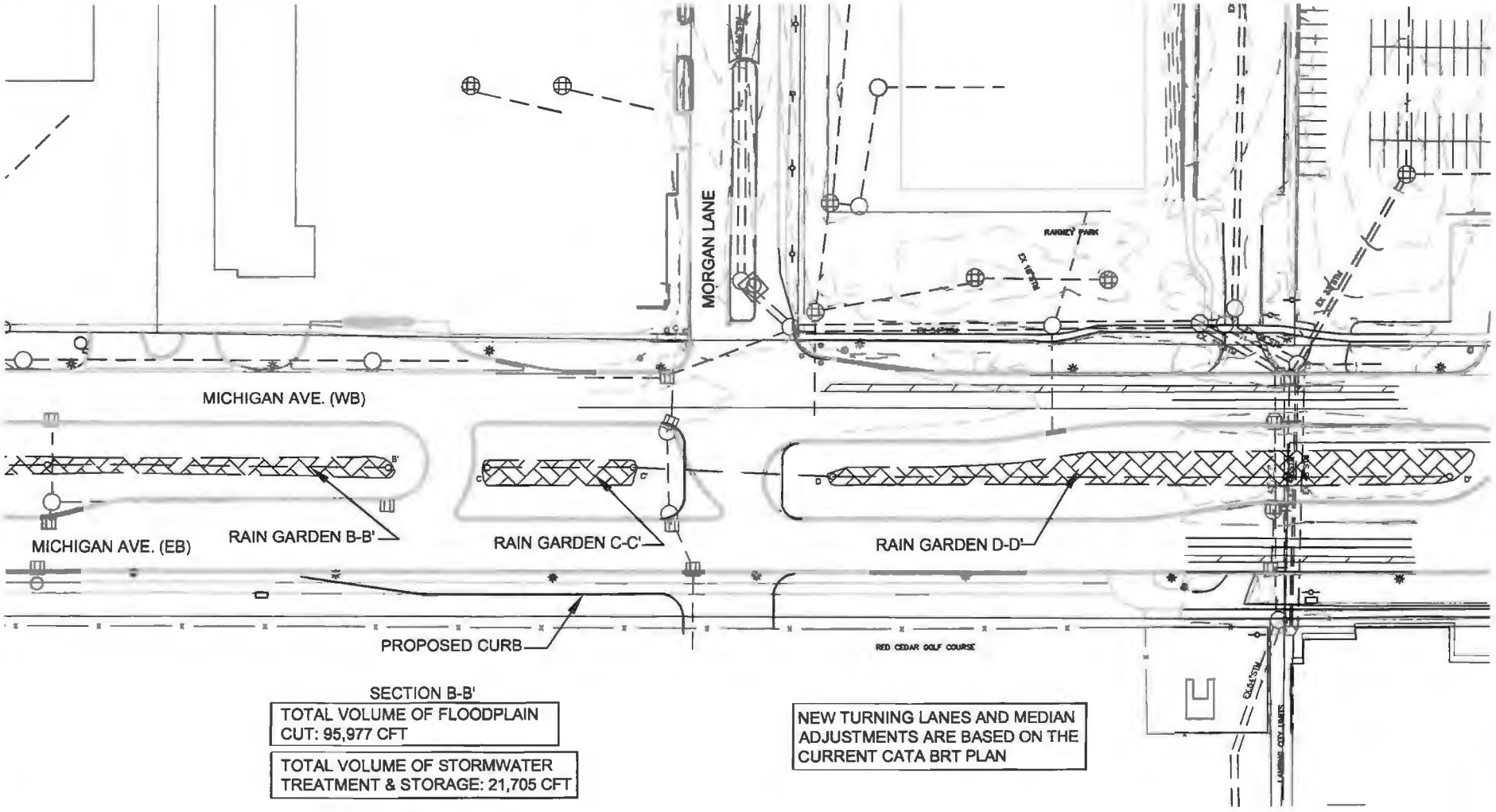
0 25 50 100

SCALE: 1" = 100'

N

MICHIGAN AVE. STORMWATER PLAN

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	2 OF 5
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-10B



SECTION B-B'

TOTAL VOLUME OF FLOODPLAIN CUT: 95,977 CFT

TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 21,705 CFT

SECTION C-C'

TOTAL VOLUME OF FLOODPLAIN CUT: 8,710 CFT

TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 4,990 CFT

SECTION D-D'

TOTAL VOLUME OF FLOODPLAIN CUT: 48,625 CFT

TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 23,908 CFT

NEW TURNING LANES AND MEDIAN ADJUSTMENTS ARE BASED ON THE CURRENT CATA BRT PLAN

LEGEND

- ROAD RIGHT OF WAY
- PARCEL LINE
- RAINGARDEN LOCATION
- CROSS SECTION LOCATIONS

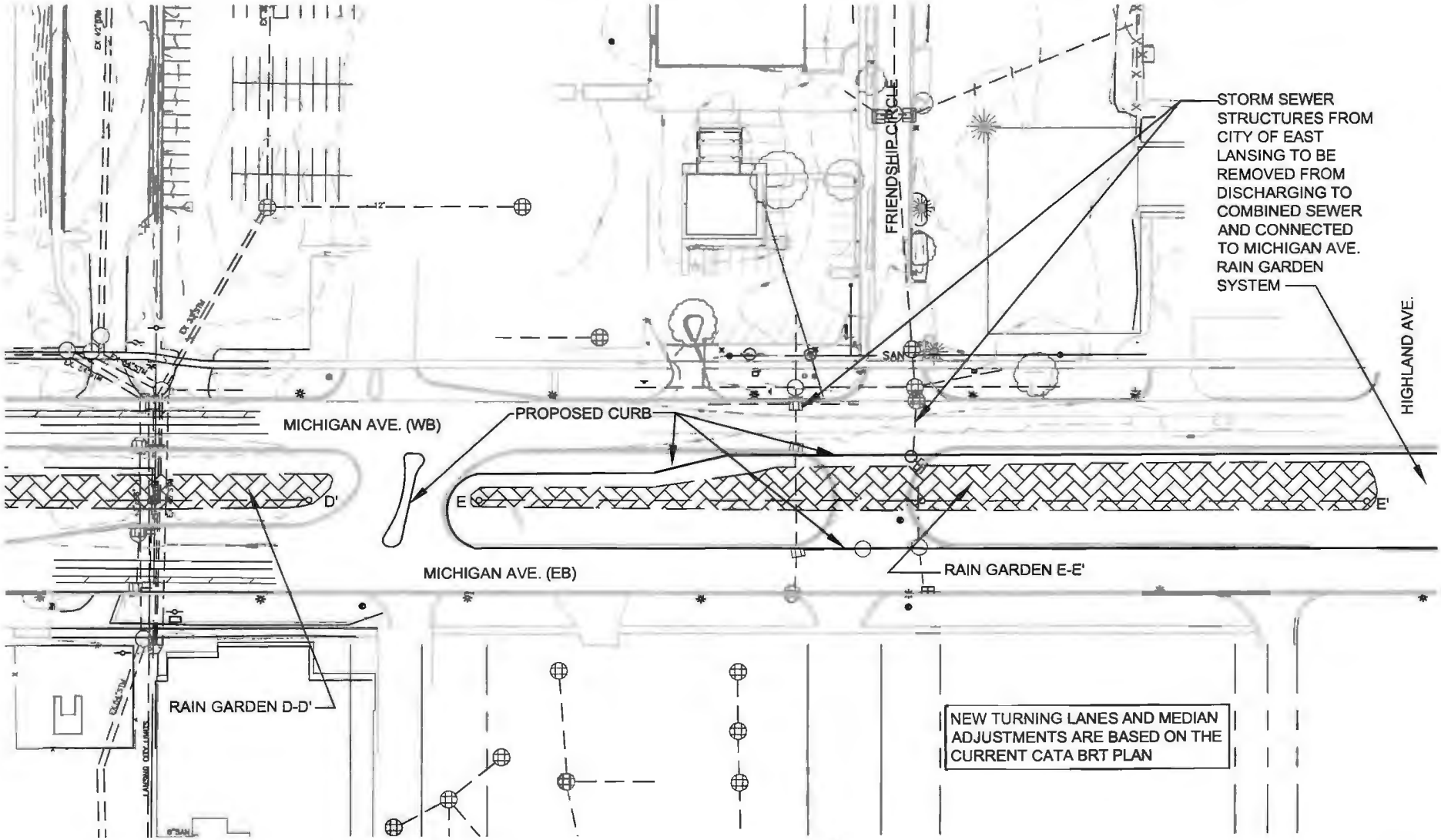
0 25 50 100

SCALE: 1" = 100'

N

MICHIGAN AVE. STORMWATER PLAN

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	3 OF 5
DATE:	AUGUST 1, 2015
EXHIBIT NO:	ICDC-GP-31-10C



LEGEND

- ROAD RIGHT OF WAY
- PARCEL LINE
- RAINGARDEN LOCATION
- CROSS SECTION LOCATIONS

SECTION D-D'

TOTAL VOLUME OF FLOODPLAIN CUT: 48,625 CFT

TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 23,908 CFT

SECTION E-E'

TOTAL VOLUME OF FLOODPLAIN CUT: 58,223 CFT

TOTAL VOLUME OF STORMWATER TREATMENT & STORAGE: 20,910 CFT

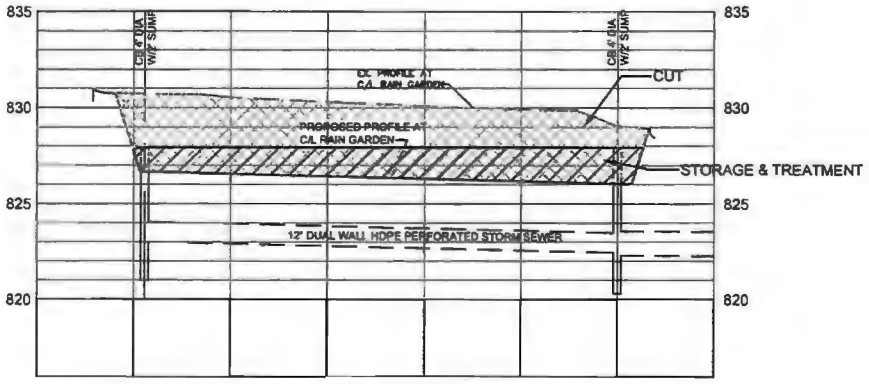
0 25 50 100

SCALE: 1" = 100'

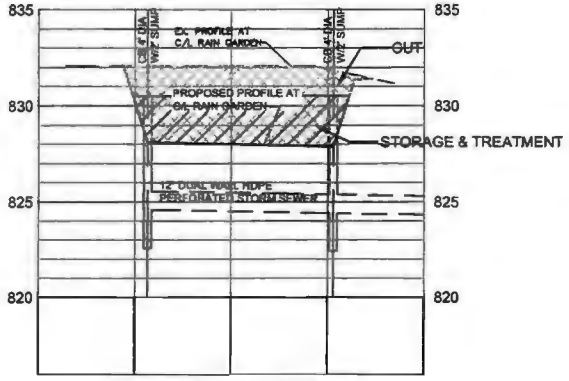
N

MICHIGAN AVE. STORMWATER PLAN

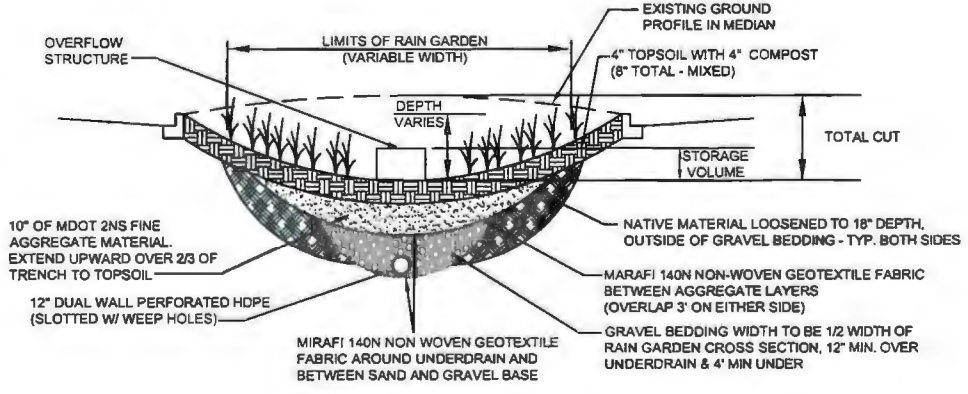
APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	4 OF 5
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC-GP-31-10D



RAIN GARDEN A-A



RAIN GARDEN C-C



MICHIGAN AVE. TYPICAL RAIN GARDEN DETAIL

NO SCALE

LEGEND

CUT (INCLUDES STORAGE & TREATMENT AREA)

STORAGE & TREATMENT

0 25 50 100

SCALE:
HORIZONTAL 1" = 100'
VERTICAL 1" = 10'

MICHIGAN AVE. STORMWATER PLAN
RAINGARDEN CROSS SECTION TYPICAL

APPLICANT:	INGHAM COUNTY DRAIN COMMISSIONER
WATERWAY:	MONTGOMERY DRAIN
CITY:	LANSING, MICHIGAN
COUNTY:	INGHAM
NUMBER OF SHEETS:	5 OF 5
DATE:	AUGUST 31, 2015
EXHIBIT NO:	ICDC–GP–31–10E

Montgomery Drain Storm Water Quality Treatment Pond

Stage, Storage and Excavation Calculations

POND STAGE

POND INCREMENTAL AND CUMULATIVE SURFACE AREAS AND VOLUMES

	Surface Area, Storage Volume, and Excavated Volume Provided within Excavated Pond Limits						Area & Storage Volume Provided Outside of Excavated Pond Limits				Total Combined Surface Area and Storage Volume Within and Outside of Excavated Pond Limits			
Pond Stage (Feet)	Surface Area (Sq Ft)	Surface Area (Acres)	Incremental Storage Volume (Ac-Ft)	Cumulative Storage Volume (Ac-Ft)	Incremental Exc Volume from CAD (Ac-Ft)	Cumulative Exc Volume from CAD (Ac-Ft)	Surface Area (Sq Ft)	Surface Area (Acres)	Incremental Storage Volume (Ac-Ft)	Cumulative Storage Volume (Ac-Ft)	Total Surface Area (Sq Ft)	Total Surface Area (Acres)	Incremental Storage Volume (Ac-Ft)	Cumulativ Storage Volume (Ac-Ft)
806.0	546	0.01	0.00	0.00	0.0	0.02	-	0.00	0.00	0.00	546	0.01	0.00	0.00
807.0	1,214	0.03	0.02	0.02	0.02	0.04	0	0.00	0.00	0.00	1,214	0.03	0.02	0.02
808.0	2,195	0.05	0.04	0.06	0.04	0.08	0	0.00	0.00	0.00	2,195	0.05	0.04	0.06
809.0	6,125	0.14	0.10	0.15	0.06	0.14	0	0.00	0.00	0.00	6,125	0.14	0.10	0.15
810.0	10,777	0.25	0.19	0.35	0.09	0.24	0	0.00	0.00	0.00	10,777	0.25	0.19	0.35
811.0	17,921	0.41	0.33	0.68	0.32	0.55	0	0.00	0.00	0.00	17,921	0.41	0.33	0.68
812.0	26,616	0.61	0.51	1.19	0.50	1.05	0	0.00	0.00	0.00	26,616	0.61	0.51	1.19
813.0	38,026	0.87	0.74	1.93	0.72	1.77	0	0.00	0.00	0.00	38,026	0.87	0.74	1.93
814.0	50,051	1.15	1.01	2.94	1.01	2.78	0	0.00	0.00	0.00	50,051	1.15	1.01	2.94
815.0	66,345	1.52	1.34	4.28	1.33	4.11	0	0.00	0.00	0.00	66,345	1.52	1.34	4.28
816.0	91,401	2.10	1.81	6.09	1.75	5.86	0	0.00	0.00	0.00	91,401	2.10	1.81	6.09
817.0	126,473	2.90	2.50	8.59	2.44	8.30	0	0.00	0.00	0.00	126,473	2.90	2.50	8.59
818.0	186,728	4.29	3.60	12.19	3.52	11.82	0	0.00	0.00	0.00	186,728	4.29	3.60	12.19
819.0	290,801	6.68	5.48	17.67	5.12	16.95	0	0.00	0.00	0.00	290,801	6.68	5.48	17.67
820.0	334,388	7.68	7.18	24.84	7.12	24.06	0	0.00	0.00	0.00	334,388	7.68	7.18	24.84
821.0	349,132	8.01	7.85	32.69	7.85	31.91	0	0.00	0.00	0.00	349,132	8.01	7.85	32.69
822.0	369,546	8.48	8.25	40.94	8.24	40.16	0	0.00	0.00	0.00	369,546	8.48	8.25	40.94
823.0	384,507	8.83	8.66	49.59	8.48	48.64	0	0.00	0.00	0.00	384,507	8.83	8.66	49.59
824.0	399,654	9.17	9.00	58.59	8.55	57.19	11,262	0.26	0.13	0.13	410,916	9.43	9.13	58.72
825.0	414,859	9.52	9.35	67.94	8.43	65.61	33,117	0.76	0.51	0.64	447,976	10.28	9.86	68.58
826.0	430,165	9.88	9.70	77.64	7.34	72.95	151,930	3.49	2.12	2.76	582,095	13.36	11.82	80.41
827.0	430,165	9.88	9.88	87.52	4.10	77.05	151,930	3.49	3.49	6.25	582,095	13.36	13.36	93.77
828.0	430,165	9.88	9.88	97.39	1.61	78.66	151,930	3.49	3.49	9.74	582,095	13.36	13.36	107.13
829.0	430,165	9.88	9.88	107.27	0.31	78.97	151,930	3.49	3.49	13.23	582,095	13.36	13.36	120.49

Working Pond Storage Volume (819-824):	40.9
Freeboard Storage Volume (824-826):	19.0
Total t Storage Volume within Exc Pond Limts:	60.0

Working Pond Volume Total within and outside Exc Pond Limits (819-824):	41.1
Freeboard Storage within and outside of Exc Pond Limits (824-826):	21.7
Total Storage within and outside of Excavated Pond Limits:	62.7

Volume of Excavation/Cut above 824.0 Feet: 21.8 AC-FT

Threatened and Endangered Species Review

Montgomery Drain Improvement Project
And
Red Cedar Renaissance

Property located in Sections 13 and 14, T4N, R2E, Cities of Lansing and East Lansing, Ingham County, Michigan

Prepared By:

streamside
ecological services

Prepared For:

Ingham County Drain Commissioner

And

Ferguson\Continental Lansing, LLC

August 28, 2015

Introduction

The Ingham County Drain Commissioner and Ferguson\Continental Lansing, LLC are both working on projects associated with an approximately 50 acre site located at the southeast corner of Michigan Avenue and Clippert Street, in Sections 13 and 14 of the Cities of Lansing and East Lansing, Ingham County, Michigan (Figure 1, Attachment A). The Drain Commissioner's project includes a proposed water collection and treatment system for the Montgomery Drain and Ferguson\Continental is proposing a development named the Red Cedar River Renaissance. The project site contains the Red Cedar River, some wetlands, floodplain and floodway of the river that are regulated by the Michigan Department of Environmental Quality (MDEQ). As such, both parties have had routine pre-application meetings with the MDEQ (MDEQ File 15-33-0004P) to discuss regulatory issues and submittal of appropriate and complete permit applications.

As part of the communication between the MDEQ, the Drain Commissioner and Ferguson\Continental, the MDEQ provided a list of threatened and endangered species that have been known to occur in the area. The MDEQ also indicated which species would have to be reviewed for, and provided direction on conducting reviews. The species listed by MDEQ include the following:

Common Name	**Scientific Name**	**Status (State/Federal)**
Round pigtoe mussel	*Pleurobema sintoxia*	Special Concern/Not Listed
Rainbow mussel	*Villosa iris*	Special Concern/Not Listed
Slippershell mussel	*Alasmidonta viridis*	Threatened/Not Listed
Cup plant	*Silphium perfoliatum*	Threatened/Not Listed
Beak grass	*Diarrhena obovata*	Threatened/Not Listed
Indiana bat	*Myotis sodalis*	Endangered/Endangered
Northern long-eared bat	*Myotis septentrionalis*	Not Listed/Threatened

Based on our discussions with the MDEQ, and their understanding of the projects, a review for the three mussel species listed is not required since the projects do not require work within the river bed, and two of the three species are listed as special concern and not afforded protection under state or federal statute. The MDEQ requested review for the remainder of the species and provided direction on review for bat habitat, particularly since the northern long-eared bat was recently

listed by the federal government, and specific protocols for review have been established by the US Fish and Wildlife Service (USFWS).

As a result of the direction given by MDEQ, the Ingham County Drain Commissioner and Ferguson/Continental requested Streamside Ecological Services, Inc. (SES) to conduct an assessment for the species identified. This report presents the findings of our assessment.

Methods

Habitat requirements identified by the State of Michigan, Michigan Natural Features Inventory (MNFI), and the USFWS for the listed species were reviewed prior to conducting field surveys. A brief summary of these requirements are identified below for each species.

Species	Preferred Habitat
Cup plant	Most of Michigan's cup plant colonies lie on river floodplains in forest openings, swales and sloughs along river margins, and other wet edges. The species is typically associated with a thick ground cover of Ambrosia trifida (great ragweed), Laportea canadensis (wood nettle), Helianthus spp. (sunflower), Eupatorium spp. (Joe-pye-weed), and goldenrods, such as Solidago gigantea (late goldenrod), and S. Canadensis (Canada goldenrod). (Penskar and Crispin. 2010)
Beak grass	In Michigan and elsewhere in its range, beak grass inhabits moist, shaded to partly-shaded southern floodplain forests. It most commonly occurs on levees and drier portions of first bottoms and second bottoms where it is usually found in scattered clumps, although it also may form a locally dense groundcover in some localities. (O'Connor and Penskar. 2004).
Indiana bat	Indiana bats roost and form maternity colonies under loose bark or in hollows and cavities of mature trees in the floodplain forest. In Michigan, savanna habitats adjacent to riparian corridors may have been historically important for roost sites, as the bats are thought to prefer sun-exposed trees for maximum warmth at the northern limit of their range. (MNFI 2007).
Northern long-eared bat	During the summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags (dead trees). Males and non-reproductive females may also roost in cooler places, like caves and mines. Northern long-eared bats seem to be flexible in selecting roosts, choosing roost trees based on suitability to retain bark or provide cavities or crevices. This bat has also been found rarely roosting in structures, like barns and sheds" (USFWS).

Cup Plant and Beak Grass

Best survey times for the cup plant and beak grass are August 15 through September and June through September respectively. The project site was reviewed on June, 8 and 18, 2015 and on August 27, 2015. Surveys were conducted via meander searches that focused on potential impact areas by identifying plat communities, dominant plant species, and searching for the target species and preferred habitat. Photographs of each plant community were also taken.

Indiana Bat and Northern Long-Eared Bat

Based on direction from the USFWS, the 2015 Range-wide Indiana Bat Summer Survey Guidelines (April 1, 2015) was used to guide field assessments. Review of the project area was completed by meander searches focusing on trees that could potentially provide habitat for the bats. Any tree greater than 3 inches diameter breast height (DBH) that could potentially provide roosting habitat was individually identified and photographed. Adjacent areas were also reviewed by meander searches by foot ad by car (to complete general surrounding land use assessments). Aerial photographs were used to estimate forested areas.

Results and Conclusions

Cup Plant and Beak Grass

Five plant communities were identified during searches for both plant species. These are identified as Areas A through E on Figure 2 of Attachment A with representative photographs in Attachment B. Neither species were found during the surveys. Each area is briefly described below.

Plant Species Present

Area	Common Name	Scientific Name	General Description
A	Canadian thistle	*Cirsium arvense*	Open, dry field with scattered trees and shrubs. Located at entrance to park and baseball fields.
	Staghorn sumac	Rhus typhina	
	Common teasel	Dipsacus sylvestris	
	Common milkweed	Asclepias syriaca	
	Red clover	Trifolium pratense	
	Bent grass	Agrostis sp.	
	White clover	*Trifolium repens*	

Plant Species Present (Continued)

Area	Common Name	Scientific Name	General Description
	Canadian thistle	*Cirsium arvense*	
	Staghorn sumac	*Rhus typhina*	
	Common privet	*Ligustrum vulgare*	
	Spruce	*Pica sp.*	
	Deadly nightshade	*Atropa belladonna*	
B	White sweet clover	*Melilotus albus*	Small stand of trees surrounded by area A.
	White clover	*Trifolium repens*	
	Common teasel	*Dipsacus sylvestris*	
	Sugar maple	*Acer saccharum*	
	Honey locust	*Gleditsia triacanthos*	
	Ornamental Maple Trees		
	Canadian thistle	*Cirsium arvense*	
	White clover	*Trifolium repens*	
	Red clover	Trifolium pratense	
	Bent grass	Agrostis sp	
	Redtop	*Agrostis gigantea*	
	Curly Dock	*Rumex crispus*	
	Tall goldenrod	*Solidago altissima*	
	Common dandelion	*Taraxacum officinale*	Large open field with scattered trees. Primarily upland with four small wetland pockets. This area is an abandoned city golf course
C	Pokeweed	*Phytolacca americana*	
	Poison ivy	*Toxicodendron radicans*	
	Box elder	*Acer negundo*	
	Sycamore	*Platanus occidentalis*	
	Eastern cottonwood	*Populus deltoides*	
	White oak	*Quercus alba*	
	Black cherry	*Prucis serotina*	
	Black locust	*Robinia pseudoacacia*	
	Common milkweed	*Asclepias syriaca*	
	Apple tree	*Malus*	

Plant Species Present (Continued)

Area	Common Name	Scientific Name	General Description
	Black locust	*Robinia pseudoacacia*	
	Black cherry	*Prucis serotina*	
	Eastern cottonwood	*Populus deltoides*	
	Poison ivy	*Toxicodendron radicans*	
	Box elder	*Acer negundo*	
	Silver maple	*Acer saccharinum*	
	Black raspberry	*Rubus occidentalis*	
	Jumpseed	*Polygonum virginianum*	
D	Common buckthorn	*Rhamnus cathartica*	Forested slope along edge of the Red Cedar River.
	Virginia creeper	*Parthenocissus quinquefolia*	
	Prickly ash	*Zanthoxylum americanum*	
	Sugar Maple	*Acer saccharum*	
	Basswood	*Tilia americana*	
	Common privet	*Ligustrum vulgare*	
	Honeysuckle	*Lonicera* sp.	
	False solomon's seal	*Maianthemum racemosum*	
	American elm	*Ulmus americana*	
	Touch-me-not	*Impatiens capensis*	
	Bloodroot	*Sanguinaria canadensis*	
	Riverbank grape	*Vitis riparia*	
	Common blackberry	*Rubus allegheniensi*	
	Sedge	*Carex grandularis*	
	Common buckthorn	*Rhamnus cathartica*	
	Nettle	*Urtica dioica*	Forested floodplain adjacent to the Red Cedar River. Includes two small wetland areas.
E	Giant ragweed	*Ambrosia trifida*	
	Honeysuckle	*Lonicera*sp.)	
	False solomon's seal	*Maianthemum racemosum*	
	American elm	*Ulmus americana*	
	Box elder	*Acer negundo*	
	Silver maple	*Acer saccharinum*	
	Basswood	*Tilia americana*	
	Honeysuckle	*Lonicera* sp.	

Both plant species inhabit floodplain forests and forest openings which occur on the site, near the Red Cedar River. Some associate species are also present within the forested and adjacent areas. However, neither species was found, likely because of the past disturbances on the site. The forested floodplain has evidence of past filling and excavations with species such as common buckthorn and box elder being dominant in many areas; especially the areas shown as proposed impacts. It is our opinion that the proposed work will not result in impacts to either plant species.

Indiana Bat and Northern Long-Eared Bat

The project site is within the range of both bat species. Review of available information for the Northern long-eared bat found that there are no known occurrences, hibernacula or roosting sites in Ingham County or within approximately 30 miles of the project site (Figures 3 and 4 USFWS maps - Attachment A).

Attachment A also includes an aerial photograph (Figure 5) identifying forested areas of the site, and the areas of proposed forested impact. The approximate area of associated forests are identified below.

Area	**Total Area (Ac.)**	**Forested Area (Ac.)**	**% Forested Area**
Project Site	54.0	8.0	15

The numbers and percentages above do not reflect the scattered trees within the open areas of the site, however those trees were also assessed for potential bat habitat. In addition, the projects entail a significant amount of work north of Michigan Avenue that is also not reflected here. These northern areas are void of trees and are associated with Frandor Mall and adjacent commercially developed properties.

The project site south of Michigan Avenue includes development of approximately 0.6 acre of forested area or 1.2 percent of the project site. The majority of this area is area B which is strongly dominated by spruce trees. The other three areas are associated with construction of a wetland water quality treatment basin and east and west outlets for the basin. The proposed forested impact areas are identified on Figure 5.

Our field review focused on the proposed areas of impact and surrounding land. Results of our surveys found 5 areas within or near the proposed forested impact where trees 3 inch DBH or greater were present with exfoliating bark. Additional scattered dead or dying trees are present singly within the open field areas. However, most trees have little or no exfoliating bark. The areas with trees of significance are identified as Areas 1 through 5 on Figure 5 with photographs in Attachment B. Each are briefly described below.

Area	Proposed Impact Location	Description
1	Near western outlet.	Four dead ash near fence line for baseball field. Located within western end of proposed pond. Proposed for impact.
2	Western portion of proposed pond.	Immediately north of forested area. 6 dead eastern cottonwood. Likely impacted by pond construction.
3	Near southern boundary of proposed pond.	1 dead ash. Likely not impacted.
4	Near southern boundary of eastern portion of proposed pond.	4 dead cottonwood near small forested wetland pocket. Likely not impacted by pond
5	Near eastern outlet.	2 dead ash. Likely not impacted.

Areas 1 through 4 contain stands of dead trees that are stand-alone areas at the edge of, or within a large forested opening. These areas lack a surrounding over or mid story. Area 5 is located at the edge of a narrow band of trees adjacent to the river. This area contains a dense mid-story but is located at the outer edge of the wooded portion.

Surround land use consists of a highly urbanized area consisting of developed residential and commercial land north, east and west of the project site. The Red Cedar River is present to the south with a mature upland hardwood forest present south of the river.

Based on our review of the project site, potential habitat for bats does exist within one area of proposed work. The remainder of the habitat identified appears to be avoided based on current project plans. After discussions with the MDEQ and USFWS, we recommend that potential impacts to the bats be avoided by removing trees between October 1 and April 1 when the bats have migrated from Michigan. It is our understanding that trees located within the northern, open areas of the site are scheduled for removal late fall or winter, 2015/2016. We recommend the tree removal necessary within the southern portions of the project site be completed at the same time.

Literature Cited

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O'Connor, R.P. and M.R. Penskar. 2004. Special Plant Abstract for Diarrhena obovate (American beak grass). Michigan Natural Features Inventory. Lansing, MI. 3 pp.

USFWS. Northern Long-eared Bat fact sheet. Available online at http://www.fws.gov/midwest/endangered/mammals/nleb/nlebFactSheet.html

USFWS 2015. http://www.fws.gov/arkansas-es/docs/FINAL%202015%20Indiana%20Bat%20Summer%20Survey%20Guidelines%20(with%20blue%20revisions)%2004-01-2015.pdf

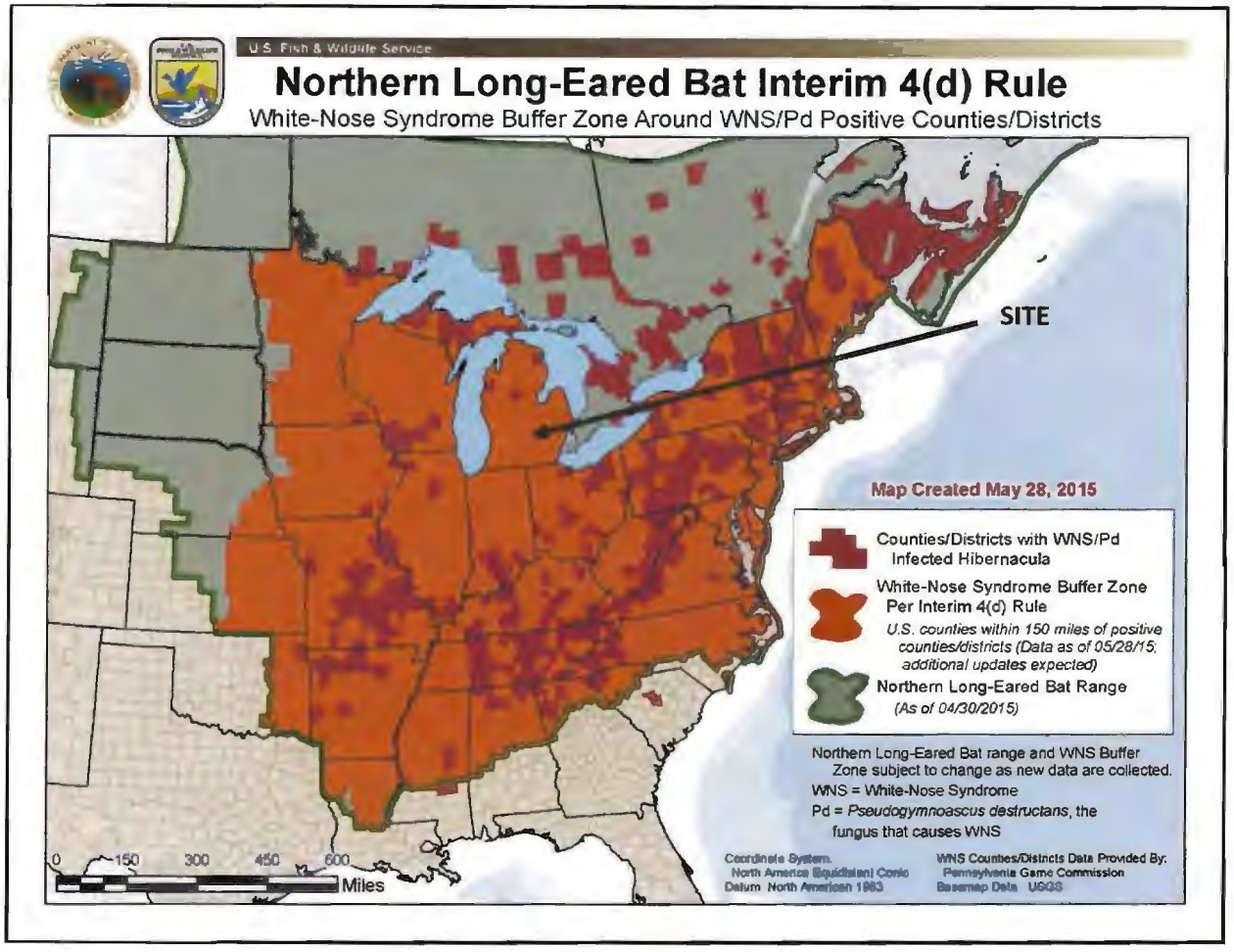
Attachment A

Figures

streamside ecological services	LOCATION MAP Montgomery/Red Cedar		FIGURE NO. 1

N
W E
S

streamside ecological services	Plant Community Areas		FIGURE NO. 2
	Montgomery/Red Cedar		



N
W E
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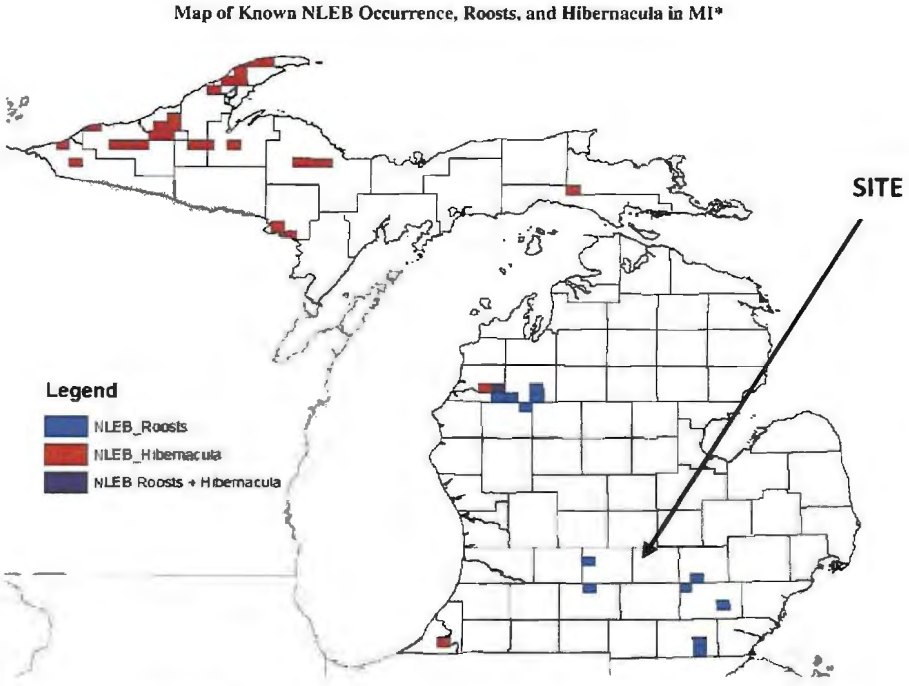
streamside ecological services	White Nose Syndrome Zones Montgomery/Red Cedar		FIGURE NO. 3



streamside ecological services	Known Roosts and Hibernacula		FIGURE NO.
	Montgomery/Red Cedar		4

= Signifies trees with exfoliating bark

streamside ecological services	Forested Area		FIGURE NO. 5
	Montgomery/Red Cedar		

Attachment B

Photographs

Area A

Area B

Area C

Area C

Area D

Area E

Area E

Area E

Area 1

Area 2

Area 3

Area 4

Area 5

Eastern Outlet Location

Western Outlet Location

Wooded Impact Area for Pond

Area B – Wooded Impact Area

WETLAND DELINEATION

Montgomery Drain
And
Red Cedar Renaissance

Property located in Sections 13 and 14, T4N, R2E, Cities of Lansing and East Lansing, Ingham County, Michigan

Prepared By:

streamside
ecological services

Prepared For:

Ingham County Drain Commissioner

And

Ferguson\Continental Lansing, LLC

August 20, 2011

Introduction

Streamside Ecological Services, Inc. (SES) conducted a wetland delineation within approximately 50 acres of property at the southeast corner of Michigan Avenue and Clippert Street, located in Sections 13 and 14 of the Cities of Lansing and East Lansing, Ingham County, Michigan (Figure 1). The delineation was performed at the request of The Ingham County Drain Commissioner and Ferguson\Continental Lansing, LLC. The purpose of this work was to identify the extent, location and regulatory status of wetlands within the property.

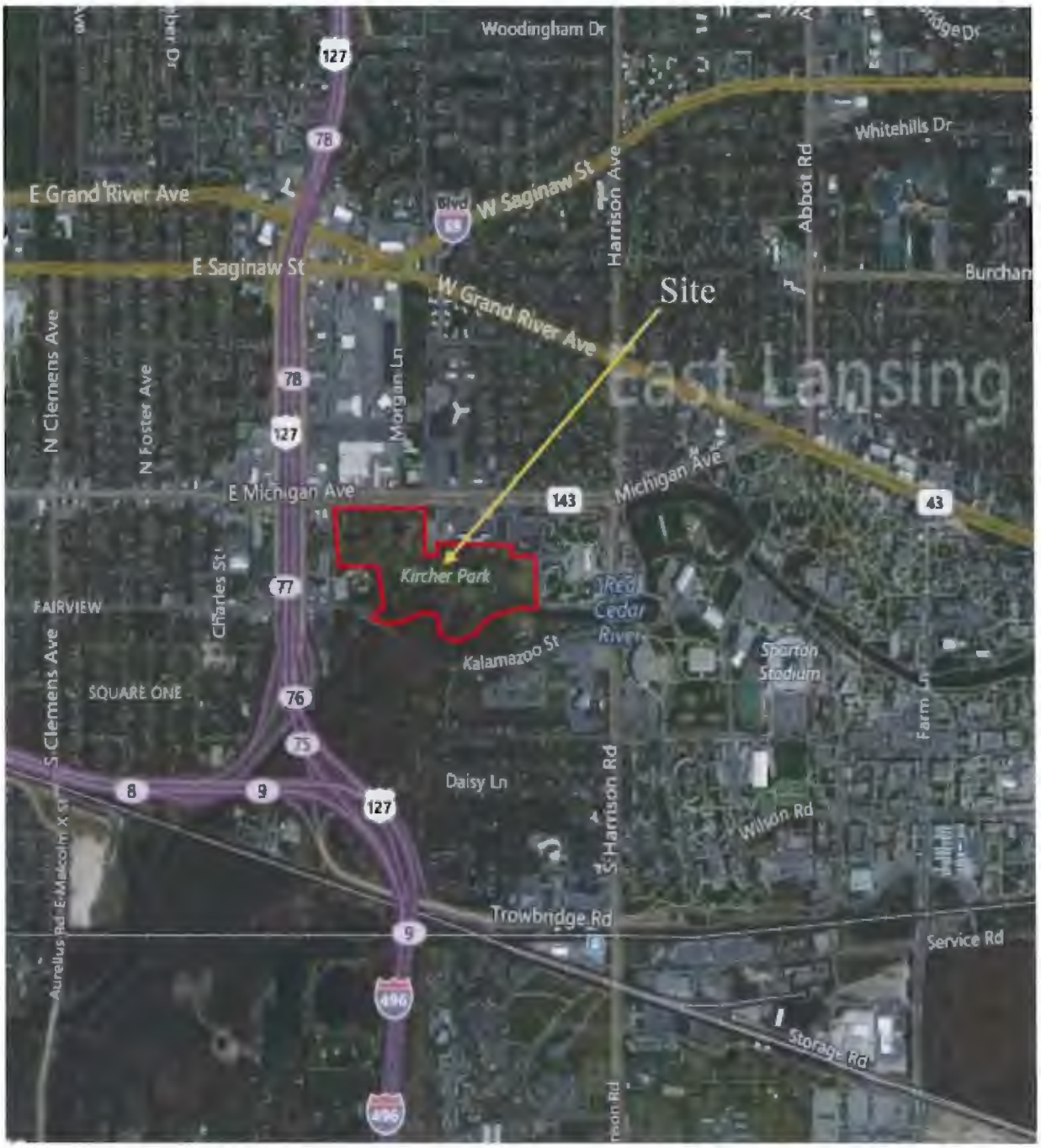
Methods

On May 4, 2015, wetland boundaries were identified and delineated by SES pursuant to statutory language and Rules of Part 303, Wetland Protection, of the Natural Resources and Environmental Protection Act (NREPA), 1994 P.A. 451, as amended. As required in Part 303, technical wetland delineation standards were used as set forth in the United States Army Corps of Engineers (USACE) January 1987 wetland delineation manual, technical report Y-87-1, and appropriate regional USACE supplements. The delineated wetland boundaries were flagged in the field with pink survey ribbon and sequentially numbered to aid in visualizing and surveying the boundaries. All boundaries were subsequently surveyed by LSG Engineers & Surveyors. .

Results

Six wetlands (Wetlands A through F) were delineated and surveyed on the Property (Figure 2). The following flag numbers were used to delineate the wetlands:

Wetland	Flag Numbers
A	A1 – A22
B	B1 – B10
C	C1 – C33
D	D1 – D17
E	E1 – E24
F	F1 – F19



streamside ecological services	LOCATION MAP		FIGURE NO. 1
	Montgomery/Red Cedar		

streamside ecological services	WETLAND BOUNDARIES Montgomery/Red Cedar		FIGURE NO. 2

The property, with the exception of forested areas near the Red Cedar River, consists of open field that has reverted after the abandonment of an old city golf course. Aerial photography, and observed site conditions show remnants of the old course including greens, tees and sand traps. The majority of the wetlands present are of relatively low quality and are associated with low areas that were present in the golf course fairways. A brief description of each wetland is presented below.

Wetland A is adjacent to the Red Cedar River and mostly consists of a mud flat routinely flooded by the river during storm events. Some forested wetland vegetation is present within the northern portion of the wetland.

Wetland B consists of a man-made depression that collects and holds water during storm events. This area is a linear excavated pit with little vegetation present. The adjacent upland slopes contain plant species such as box elder (*Acer negundo*) and common buckthorn (*Rhamnus cathartica*) which are indicative of disturbed soils.

Wetland C is a wet meadow wetland immediately north of Wetland B. This area is strongly dominated by reed canary grass (*Phalaris arundinacea*) and wetland hydrology is marginal. While dominated by wetland rated plant species, other upland species such as common milkweed (*Asclepias syriaca*) and common dandelion (*Taraxacum officin*ale) are present throughout.

Wetlands D and E are depressional areas within an open field that collect water from runoff and flooding from the river during larger storm events. Both areas consist of wet meadow wetland dominated by reed canary grass, Indian hemp (*Apocynum cannabinum*), and curly dock (*Rumex crispus*).

Wetland F is a small forested wetland with a few silver maple (*Acer saccharinum*) present. This wetland is a small depresional area that collects and holds water during storm events, and lacks an understory, likely due to periodic flooding and shading.

With the exception of Wetland A, the wetlands on the property are of relatively low quality and are the result of altered topography from original construction of the golf course. Dominant plant species observed within the wetlands are listed below. Michigan Department of Environmental Quality (MDEQ) wetland delineation data sheets may be found in Appendix A and representative photographs of the wetlands are in Appendix B.

DOMINANT PLANT SPECIES

Area	Scientific Name	Common Name	Wetness
	Apocynum cannabinum	Indian hemp	FAC
A	*Acer saccharinum*	silver maple	FACW
	Acer negundo	box elder	FACW-
B	Bare at time of inspection		
	Phalaris arundinacea	reed canary grass	FACW+
C	*Apocynum cannabinum*	Indian hemp	FAC
	Rumex crispus	curly dock	FAC+
	Phalaris arundinacea	reed canary grass	FACW+
D	*Apocynum cannabinum*	Indian hemp	FAC
	Rumex crispus	curly dock	FAC+
	Salix exigua	sandbar willow	OBL
E	*Phalaris arundinacea*	reed canary grass	FACW+
	Apocynum cannabinum	Indian hemp	FAC
F	*Acer saccharinum*	Silver maple	FACW
	Phalaris arundinacea	reed canary grass	FACW+

Regulatory Status

In Michigan, wetlands are regulated by Part 303 of NREPA if they greater than five acres in size. Wetlands are also regulated if they are contiguous to (within 500 feet of) or have a surface water connection to an inland lake, stream, or pond regardless of size.

Based on our May 5, 2015 field assessment, SES determined that Wetlands A, B, C, and F are regulated because they are within 500 feet of the Red Cedar River. Wetland E was also determined to be regulated since surface water from this wetland drains to a pipe (the Montgomery Drain) which discharges to the river. While Wetland E is farther than 500 feet from the river, the pipe connection constitutes a surface water connection to the river. Wetland D is a small, isolated wet meadow wetland farther than 500 feet from the river and is not regulated under Part 303.

Please note that the MDNRE is the state regulatory agency and has final authority over the regulatory status and location of all wetland/upland boundary lines pursuant to Part 303 of NREPA. `

APPENDIX A

Wetland Data Sheets

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.	*For DEQ Use:*
Applicant: Streamside Ecological Services	File: __ __-__ __-__ __ __ __ -__
County: Ingham T 4N R 2E S 13/14	Date: 05/05/2015
Form Completed By: M. Nurse	Wetland Area: Delineated by Letter A

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual? If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Apocynum cannabinum	Indian hemp	H/S	FAC
Acer saccharinum	silver maple	O	FACW
Acer negundo	box elder	O	FACW-

Aquatic Life Observed

Dominant Vegetation *on Upland* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Taraxacum officinale	common dandilion	H	FACU
Rhamnus cathartica	common buckthorn	H/S	FACU
Alliaria petiolata	garlic mustard	H	FAC

Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

_____ (√) Visible observation of inundation (Depth ____ in.)
_____ (√) Visible observation of soil saturation (Depth _0__ in.)
X (√) Hydric soils (√ below)
X (√) Watermarks
__ ____ (√) Drift lines
_____ (√) Sediment deposits
X (√) Drainage patterns within wetlands

Secondary Indicators:

X (√) Oxidized rhizospheres in upper 12"
_____ (√) Water stained leaves
_____ (√) Confirm soil profile matches hydric soil list
X (√) FAC-Neutral test
_____ (√) Bare soil areas
_____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils

_____(√) Organic soils (Histosols)
_____(√) Histic epipedon
_____(√) Sulfidic material (H_2S odor)
___X__(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
_____(√) Gleyed (gray) soil (i.e. matches Gley page)
X (√) Matrix chroma of 2 or less in mottled soils
___X__(√) Matrix chroma of 1 or less in unmottled soils
_____(√) Black mineral soil with gray mottles at ≤ 10 inches
_____(√) Confirm soil profile matches local hydric soil list
_____(√) Iron and manganese concretions
_____(√) Reducing soil conditions (ferrous iron test)
_____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

_____(√) High organic matter in the surface horizon
_____(√) Streaking of subsurface horizons by organic matter
_____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:

(e.g., NRCS Field Indicators of Hydric Soils):

_____

_____

_____

Morphological Plant Adaptations Observed(√):

____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves
____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling __X__Buttressed tree trunks
____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary				
Map Unit from Soil Survey:				
Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-12	10YR 3/1		Silty loam	
12-20	10YR 4/1		Silty loam	
Soil Profile on *Upland Side* of the Boundary				
Map Unit from Soil Survey:				
0-12	10YR 3/2		Silty loam	
12-20	10YR 4/2		Silty loam	

WETLAND DETERMINATION

X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
X (√) Wetland hydrology and/or hydric soil present
Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

_____ (√) Emergent Marsh ___X__ (√) Deciduous Swamp _____ (√) Fen X (√) Shrub Swamp
(√) Wet Meadow _____ (√) Coniferous Swamp _____ (√) Bog/Muskeg ___X__ (√) Floodplain Forest
_____ (√) Wet Prairie _____ (√) Deciduous Forest _____ (√) Great Lakes Marsh _____ (√) Submergent Marsh
Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.	*For DEQ Use:* File: __ __-__ __-__ __ __ __ -__
Applicant: Streamside Ecological Services	
County: Ingham T 04N R 2E S 13/14	Date: 05/4/2015
Form Completed By: M. Nurse	Wetland Area: Delineated by letter B

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual? If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Na – Bare mud flat			

Aquatic Life Observed

Dominant Vegetation *on Upland* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Rhamnus cathartica	common buckthorn	H/S	FACU
Acer negundo	box elder	O	FACW-
Rubus occidentalis	black raspberry	H	[UPL]

Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

___X___ (√) Visible observation of inundation (Depth __6__ in.)
_____ (√) Visible observation of soil saturation (Depth ____ in.)
X (√) Hydric soils (√ below)
_____ (√) Watermarks
_____ (√) Drift lines
_____ (√) Sediment deposits
_____ (√) Drainage patterns within wetlands

Secondary Indicators:

_____ (√) Oxidized rhizospheres in upper 12"
_____ (√) Water stained leaves
_____ (√) Confirm soil profile matches hydric soil list
_____ (√) FAC-Neutral test
X (√) Bare soil areas
_____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils

_____(√) Organic soils (Histosols)
_____(√) Histic epipedon
_____(√) Sulfidic material (H_2S odor)
___X_(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
_____(√) Gleyed (gray) soil (i.e. matches Gley page)
_____(√) Matrix chroma of 2 or less in mottled soils
__X___(√) Matrix chroma of 1 or less in unmottled soils
_____(√) Black mineral soil with gray mottles at ≤ 10 inches
_____(√) Confirm soil profile matches local hydric soil list
_____(√) Iron and manganese concretions
_____(√) Reducing soil conditions (ferrous iron test)
_____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

_____(√) High organic matter in the surface horizon
_____(√) Streaking of subsurface horizons by organic
_____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

_____
_____
_____

Morphological Plant Adaptations Observed(√):

____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves
____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks
____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary				
Map Unit from Soil Survey:				
Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-12	10YR 2/1		Silty loam	
Soil Profile on *Upland Side* of the Boundary				
Map Unit from Soil Survey:				
0-12	10YR 4/3		Silty loam	

WETLAND DETERMINATION

X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
X (√) Wetland hydrology and/or hydric soil present (Yes and No)
Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

_____ (√) Emergent Marsh ___X___ (√) Deciduous Swamp _____ (√) Fen X (√) Shrub Swamp
_____ (√) Wet Meadow _____ (√) Coniferous Swamp _____ (√) Bog/Muskeg _____ (√) Floodplain Forest
_____ (√) Wet Prairie _____ (√) Deciduous Forest _____ (√) Great Lakes Marsh _____ (√) Submergent Marsh

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

For DEQ Use:
File: __ __-__ __-__ __ __ __ -__

Applicant: Streamside Ecological Services
County:Ingham T 04N R 02E S 13/14 Date: 05/4/2015
Form Completed By: M. Nurse Wetland Area: Delineated by letter C

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual? If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Phalaris arundinacea	reed canary grass	H	FACW+
Apocynum cannabinum	Indian hemp	H	FAC
Rumex crispus	curly dock	H	FAC+

Aquatic Life Observed

Dominant Vegetation *on Upland* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Rhamnus cathartica	common buckthorn	H/S	FACU
Cirsium arvense	Canada Thistle	H	FACU
Taraxacum officinale	common dandilion	H	FACU
Dipsacus fullonum	Common teasle	H	[UPL]

Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

_____ (√) Visible observation of inundation (Depth ____ in.)
_____ (√) Visible observation of soil saturation (Depth ____ in.)
X (√) Hydric soils (√ below)
list _____ (√) Watermarks
_____ (√) Drift lines
_____ (√) Sediment deposits
below)
_____ (√) Drainage patterns within wetlands

Secondary Indicators:

_____ (√) Oxidized rhizospheres in upper 12"
_____ (√) Water stained leaves
_____ (√) Confirm soil profile matches hydric soil
X (√) FAC-Neutral test
_____ (√) Bare soil areas
_____ (√) Morphological plant adaptations (√

Hydric Indicators for Non-Sandy Soils

_____(√) Organic soils (Histosols)
_____(√) Histic epipedon
matter
_____(√) Sulfidic material (H_2S odor)
___X__(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
_____(√) Gleyed (gray) soil (i.e. matches Gley page)
X (√) Matrix chroma of 2 or less in mottled soils
___X__(√) Matrix chroma of 1 or less in unmottled soils
_____(√) Black mineral soil with gray mottles at ≤ 10 inches
_____(√) Confirm soil profile matches local hydric soil list
_____(√) Iron and manganese concretions
_____(√) Reducing soil conditions (ferrous iron test)
_____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

_____(√) High organic matter in the surface horizon
_____(√) Streaking of subsurface horizons by organic

_____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

_____

_____

_____

Morphological Plant Adaptations Observed(√):

____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves
____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks
____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary				
Map Unit from Soil Survey:				
Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-10	10YR 4/2		Silty loam	
10-15	10YR 4/1		Silty loam	
Soil Profile on *Upland Side* of the Boundary				
Map Unit from Soil Survey:				
0-15	10YR 4/2		Silty loam	

WETLAND DETERMINATION

X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
X (√) Wetland hydrology and/or hydric soil present (Yes and No)
Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

_____ (√) Emergent Marsh _____ (√) Deciduous Swamp _____ (√) Fen (√) Shrub Swamp
X (√) Wet Meadow _____ (√) Coniferous Swamp _____ (√) Bog/Muskeg _____ (√) Floodplain Forest
_____ (√) Wet Prairie _____ (√) Deciduous Forest _____ (√) Great Lakes Marsh _____ (√) Submergent Marsh
Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

streamside ecological services

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

For DEQ Use:
File: __ __-__ __-__ __ __ __ -__

Applicant: Streamside Ecological Services
County:Ingham T 04N R 02E S 13/14 Date: 05/4/2015
Form Completed By: M. Nurse Wetland Area: Delineated by letters D/E

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual? If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Phalaris arundinacea	reed canary grass	H	FACW+
Apocynum cannabinum	Indian hemp	H	FAC
Rumex crispus	curly dock	H	FAC+
Salix exigua	sandbar willow	H/S	OBL

Aquatic Life Observed

Dominant Vegetation *on Upland* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Cirsium arvense	Canada Thistle	H	FACU
Taraxacum officinale	common dandilion	H	FACU

Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

_____ (√) Visible observation of inundation (Depth ____ in.)
_____ (√) Visible observation of soil saturation (Depth ____ in.)
X (√) Hydric soils (√ below)
list _____ (√) Watermarks
_____ (√) Drift lines
_____ (√) Sediment deposits
below)
_____ (√) Drainage patterns within wetlands

Secondary Indicators:

_____ (√) Oxidized rhizospheres in upper 12"
_____ (√) Water stained leaves
_____ (√) Confirm soil profile matches hydric soil
X (√) FAC-Neutral test
X (√) Bare soil areas
_____ (√) Morphological plant adaptations (√

Hydric Indicators for Non-Sandy Soils

_____(√) Organic soils (Histosols)
_____(√) Histic epipedon
matter
_____(√) Sulfidic material (H_2S odor)
X (√) Soil color (immediately below A-horizon or within
10 inches of the surface, whichever is shallower)
_____(√) Gleyed (gray) soil (i.e. matches Gley page)
X (√) Matrix chroma of 2 or less in mottled soils
X (√) Matrix chroma of 1 or less in unmottled soils
_____(√) Black mineral soil with gray mottles at ≤ 10 inches
_____(√) Confirm soil profile matches local hydric soil list
_____(√) Iron and manganese concretions
_____(√) Reducing soil conditions (ferrous iron test)
_____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

_____(√) High organic matter in the surface horizon
_____(√) Streaking of subsurface horizons by organic

_____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

_____

_____

_____

Morphological Plant Adaptations Observed(√):

____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves
____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks
____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary				
Map Unit from Soil Survey:				
Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-15	10YR 4/1		Silty loam	
15-20	10YR 4/2		Silty loam	
Soil Profile on *Upland Side* of the Boundary				
Map Unit from Soil Survey:				
0-10	10YR 4/2		Silty loam	

WETLAND DETERMINATION

X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
X (√) Wetland hydrology and/or hydric soil present (Yes and No)
Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
Y for E: N for D (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*

Wetland Types (√ all that are present):

_____ (√) Emergent Marsh _____ (√) Deciduous Swamp _____ (√) Fen (√) Shrub Swamp
X (√) Wet Meadow _____ (√) Coniferous Swamp _____ (√) Bog/Muskeg _____ (√) Floodplain Forest
_____ (√) Wet Prairie _____ (√) Deciduous Forest _____ (√) Great Lakes Marsh _____ (√) Submergent Marsh
Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

For DEQ Use:
File: __ __-__ __-__ __ __ __ -__

Applicant: Streamside Ecological Services
County:Ingham T 04N R 02E S 13/14 Date: 05/4/2015
Form Completed By: M. Nurse Wetland Area: Delineated by letter F

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual? If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Phalaris arundinacea	reed canary grass	H	FACW+
Apocynum cannabinum	Indian hemp	H	FAC
Acer saccharinum	silver maple	O	FACW

Aquatic Life Observed

Dominant Vegetation *on Upland* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Cirsium arvense	Canada Thistle	H	FACU
Taraxacum officinale	common dandilion	H	FACU
Rhamnus cathartica	common buckthorn	H/S	FACU
Acer negundo	box elder	O	FACW-

Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

streamside ecological services

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

_____ (√) Visible observation of inundation (Depth ____ in.)
_____ (√) Visible observation of soil saturation (Depth ____ in.)
X (√) Hydric soils (√ below)
_____ (√) Watermarks
_____ (√) Drift lines
_____ (√) Sediment deposits
__X__ (√) Drainage patterns within wetlands

Secondary Indicators:

_____ (√) Oxidized rhizospheres in upper 12"
_____ (√) Water stained leaves
_____ (√) Confirm soil profile matches hydric soil list
X (√) FAC-Neutral test
__X__ (√) Bare soil areas
_____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils

_____(√) Organic soils (Histosols)
_____(√) Histic epipedon
_____(√) Sulfidic material (H_2S odor)
__X__(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
_____(√) Gleyed (gray) soil (i.e. matches Gley page)
X (√) Matrix chroma of 2 or less in mottled soils
__X__(√) Matrix chroma of 1 or less in unmottled soils
_____(√) Black mineral soil with gray mottles at ≤ 10 inches
_____(√) Confirm soil profile matches local hydric soil list
_____(√) Iron and manganese concretions
_____(√) Reducing soil conditions (ferrous iron test)
_____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

_____(√) High organic matter in the surface horizon
_____(√) Streaking of subsurface horizons by organic matter
_____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

_____
_____
_____

Morphological Plant Adaptations Observed(√):

___Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves
___Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks
___Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary				
Map Unit from Soil Survey:				
Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-8	10YR 3/1		Silty loam	
8-15	10YR 4/2		Silty loam	
Soil Profile on *Upland Side* of the Boundary				
Map Unit from Soil Survey:				
0-10	10YR 4/3		Silty loam	

WETLAND DETERMINATION

X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
X (√) Wetland hydrology and/or hydric soil present (Yes and No)
Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

_____ (√) Emergent Marsh _____ (√) Deciduous Swamp __X____ (√) Fen (√) Shrub Swamp
(√) Wet Meadow _____ (√) Coniferous Swamp _____ (√) Bog/Muskeg _____ (√) Floodplain Forest
_____ (√) Wet Prairie _____ (√) Deciduous Forest _____ (√) Great Lakes Marsh _____ (√) Submergent Marsh
Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

APPENDIX B

Photographs

Wetland A

Wetland A

Wetland B

Wetland C

Wetland D

Wetland E

Wetland F